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THE UNIVERSITY OF ALBERTA

THE NURSING PROCESS: PRACTICES AND BELIEFS

Ⓒ

BY

GLORIA J. GRAVES

A THESIS
SUBMITTED TO THE FACULTY OF GRADUATE STUDIES AND RESEARCH
IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE
OF MASTER OF NURSING

FACULTY OF NURSING

EDMONTON, ALBERTA

SPRING, 1987

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FACULTY OF GRADUATE STUDIES AND RESEARCH

The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies and Research for acceptance, a thesis entitled THE NURSING PROCESS: PRACTICES AND BELIEFS submitted by GLORIA J. GRAVES in partial fulfilment of the requirements for the degree of MASTER OF NURSING

Peggy Anne Field
(Supervisor)

Date: April 15, 1987

DEDICATION

To my mother, Marjorie Graves, for her patience, love and support through yet another of my ventures and to the memory of my father, Lloyd Graves.

ABSTRACT

The nursing process is widely regarded as a crucial component of nursing practice. Yet, there has been little research to investigate the clinical applicability of nursing process models and the practices and beliefs of the staff nurses in relation to these models. The purpose of this research was to explore nurses' practices and beliefs in relation to the nursing process and to investigate the influence of selected variables over their practices.

A questionnaire was developed for use in this project. It was designed to collect information concerning the respondents' education and experience in nursing, the number of patients in their daily assignments and their perceptions of these workloads, their perceptions of the interpersonal environment in which they worked, and their perceptions of their nursing practices and their beliefs in relation to selected nursing process activities. Standards for nursing practice adopted by the Nurses Association of New Brunswick formed the framework from which the nursing process activities were developed.

Two hundred and twenty-five nurses working full time in general duty positions on selected nursing units of one New Brunswick hospital were surveyed. Fifty-six completed questionnaires were returned. Analyses revealed that although nurses' perceptions of their practices were significantly correlated with their beliefs for each subprocess of the nursing process, their practice scores were lower than their belief scores.

Education and experience in nursing, perceptions of workload, numbers of patients in daily work assignments, hospital acuity levels, and perceptions of interpersonal environment on the nursing units were found to have no significant effects of either nurses' perceptions of their practices or their beliefs. The small sample size and the limitations of the research instrument may have contributed to the lack of statistical significance in the findings in relation to these variables.

PREFACE

It is not within the power of
the properly constructed mind to be
satisfied. Progress would cease if
this were the case. The greatest
joy of life is to accomplish.

Sir Frederick Banting

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Many persons have contributed to the development and completion of this thesis. I wish to express my sincere appreciation to all of them, and especially to those named below.

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CHAPTER I

INTRODUCTION

Statement of the Problem

The nursing process, that is, the systematic problem-solving approach to nursing care with its interrelated subprocesses of collecting and analysing data, planning and implementing interventions, and evaluation is regarded as both the essence of nursing and a means of enhancing professionalism within nursing (Dickinson, 1982; Rhodes, 1985; Yura & Walsh, 1983). The nursing process is widely endorsed and promoted by educators, administrators, and professional nurses' associations, yet a number of authors conclude that the nursing process is not used to any appreciable extent in clinical practice (Ashworth, 1980; Harris, 1979; Kirwin, 1980, Lauri, 1982). De la Cuesta (1983) further concludes that there is a conflict between the ideology of the nursing process and the practical aspects of implementing it in clinical settings.

There is relatively little research reported in which either nurses' practices or their beliefs in relation to the nursing process are examined. A number of variables which may influence nurses' use of the nursing process in practice have been reported in the nursing literature, however these reports are, for the most part, anecdotal accounts from specific practice settings. With the clinical significance of the nursing process in question, there is a need to examine nurses' practices in relation to the nursing process, nurses' valuation of the activities which make up the nursing process, and the variables which influence nurses' practices and beliefs in relation to the nursing process.

It is particularly important to identity the nature and extent of discrepancies between ideology and practice in settings where the nursing process has been incorporated into standards for nursing practice. In 1980 the Canadian Nurses Association (CNA) stated that standards should be realistic and attainable. Given the reports of conflict between the nursing process in theory and the nursing process in practice, standards centered around the nursing process may be neither realistic nor attainable. In May 1984, nurses in New Brunswick adopted standards for nursing practice which included a detailed standard concerning the use of the nursing process (see Appendix A). The problem addressed in this study was to identify the nature and extent of agreement between nurses' beliefs about the use of the nursing process and their perceptions of its use in practice in the Province of New Brunswick. The nursing process as described in the nursing practice standards of the Nurses Association of New Brunswick formed the framework for this study.

Research Questions

This study was developed to examine four aspects of the nursing process: the extent to which nurses perceive themselves to be using it in practice, the extent to which nurses believe they ought to be using it in practice, the relationship between nurses' perceived practices and what they believe they ought to do in practice, and the significance of selected variables which may be influencing nurses' practices in relation to the nursing process. The study was guided by the following research questions:

1. How frequently do nurses in one New Brunswick hospital perceive themselves to be carrying out activities representative of the subprocesses of nursing process in their clinical practices?
2. How frequently do nurses in one New Brunswick hospital perceive that they ought to be carrying out activities representative of the subprocesses of nursing process in their clinical practices?
3. What is the relationship between nurses' perceived practices and their perceptions about what they ought to do in practice?
4. What are the variables which significantly influence nurses' perceived practices in relation to the nursing process?

Purpose and Relevance of the Study

The purpose of this study was to contribute to the existing knowledge base related to nurses' use of the nursing process in clinical practice, nurses' beliefs about the clinical applicability of the nursing process, and the influence of selected variables on nurses' ability and willingness to use the nursing process in their practices. The information gained from this study will be valuable to nurses who wish to know more about the discrepancies between nursing theory and nursing practice in relation to the nursing process. This information may be useful to nurses who wish to implement the nursing process in specific clinical settings.

Assumption

This study was developed on the assumption that the nursing process can be studied through its subprocesses: collecting data, analysing data, planning interventions, implementing interventions, and evaluation. This assumption is supported by Bevis (1982) who says a process can be defined operationally by identifying its internal subprocesses or the series of actions that form the process.

Summary

In Chapter I an introduction to the problem has been presented, specific research questions have been identified, the purpose and relevance of this study have been outlined, and an assumption pertinent to the study has been explained. Chapter II will provide a review of literature relevant to this study.

CHAPTER II

REVIEW OF RELEVANT LITERATURE

A major function of any professional association is setting standards for that profession and helping to enforce those standards in practice (Merton, 1958). Standards for health care have been a concern of humanitarians for centuries and more specifically, the standards for nursing care established by Isabel Stewart are reported to have been widely applied during the early twentieth century (Jenkinson, 1975). During the 1956 American Nurses Association (ANA) convention, all seven sections of the Association reported on their progress in developing statements related to qualifications for nurses and standards for nursing practice (ANA, 1956). Since that time, nursing standards have been developed by nurses at all levels of nursing organization (see for example Alberta Association of Registered Nurses, 1980; ANA, 1973; Canadian Council of Cardiovascular Nurses, 1983; CNA, 1980; Manitoba Association of Registered Nurses, 1977; "Nursing standards", 1984). Even the most cursory inspection of many of these standards statements reveals that the nursing process is a recognized and valued format for the delivery of nursing care.

A review of literature related to the nursing process was conducted and will be presented in the following sequence: (a) The nursing process: Background and development, (b) The nursing process: A five step model,

(c) Nursing standards for use in New Brunswick , (d) Research into nursing process, and (e) The nursing process in practice .

The Nursing Process: Background and Development

The activities contained within the nursing process are as old as nursing itself. Hughes (1968) examined works of medieval literature and found that the women healers of that era made assessments of the ill and wounded, administered seemingly appropriate treatments, and then observed their patients for signs of progress. However, it was not until Orlando published *The Dynamic Nurse-Patient Relationship* in 1961 that these nursing activities were described in terms of a specific format (Carnevali, 1983; De la Cuesta, 1983).

Orlando (1961) described the nursing process as a series of activities centered around three elements: the behavior of the patient, the reaction of the nurse, and the nursing actions designed for the patient's benefit. She believed these elements provided the basis for a theory of effective nursing practice which she hoped would guide students in developing their professional role and identity.

Meanwhile, discontent in nursing which centered around rejection of the task-oriented approach to care, the lack of individualized care, and the superficial nature of the nurse-patient relationship led other nurse-scholars to attempt to identify the role of the nurse and to describe what nurses do in practice (Brodt, 1978; De la Cuesta, 1983; Gordon, 1983). Hence, the nursing process emerged as a result of activity directed toward the need for role clarification and professional identity and became recognized as a systematic, problem-solving activity aimed toward providing high-quality, individualized care within the domain of nursing service.

The nursing process rapidly became a significant part of nursing practice and was described by Yura and Walsh in 1967 as a four step system consisting of assessment, planning, implementation, and evaluation. The four step model of nursing process is widely supported in the nursing literature. Ashworth (1980), Atkinson and Murray (1986), Brodt (1978), Hargreaves (1979), Leddy and Pepper (1985), Marriner (1983), McCarthy (1981), McGilloway (1980), Thompson (1979), and Yura and Walsh (1983) provide descriptions of the nursing process as a four-step model. Hegyvary (1979) and Lillesard and Korff (1983) use a four-step model of nursing process in developing tools to evaluate nursing care while Jones (1977), Joseph (1980), McGreevy and Coates (1980), Roper, Logan, and Tierney (1981) and Whelton (1979) illustrate how a four-step model of the nursing process fits congruently with other nursing models and theoretical frameworks. The clinical utility of a four-step model of the nursing process is well documented in a variety of case studies and clinical reports (Bailey &

Swenson-Feldman, 1982; Charles, Truesdell & Wood, 1982; Drapo, 1981; Fay, 1976; Keane, 1981; Kneedler, 1974; Zimmerman & Gohrke, 1970).

Other writers reach their definition of the nursing process using different arrangements and labels for its stages. Lewis (1968) describes the nursing process as a three-step system of assessment, intervention, and evaluation with each step broken into a number of parts. Carrieri and Sitzman (1971) also use three stages to describe the nursing process. In their system, the nursing process consists of analysis, synthesis, and reduction to practice which together involve six steps: observation, inference, validation, assessment, action, and evaluation. Berggren and Zagornik (1968) present a model of the nursing process which includes data collection, formulation of the care plan, implementation of the care plan, and validation of the plan for the purpose of evaluation. The differences among these models lie not so much in content as in the degree to which the content has been broken down into steps or stages. Walker and Nicholson (1980) believe it is not the number of steps or their sequence in the nursing process which is important but the cognitive processes which are generated by nurses when they use the nursing process to plan and give care.

While nurses were working with various arrangements of the nursing process model, the concept of nursing diagnosis was gaining acceptance and use (Chambers, 1962; Gordon, 1978, 1983; Jones, 1982; Kim & Moritz, 1982; Kormorita, 1963; Purushotham, 1981; Westfall, 1984). As work in the area of nursing diagnosis progressed, a five-step model of the nursing process emerged in which the assessment phase was separated into two distinct steps: data collection, and data analysis or diagnosis. The five-step model has been used to describe the nursing process (Hunt & Marks-Maran, 1986; Iyer, Taptich, & Bernocchi-Losey, 1986; Mitchell, 1984; Putzier & Padrick, 1984; Ziegler, Vaughan-Wrobel & Erlen, 1986), to teach the nursing process in educational settings (Brown, 1981), and to illustrate the nursing process in clinical practice (Darcy, 1980; Hildebrand; 1978, Williamson, 1982). It is a five-step model of the nursing process consisting of collecting data, analysing data, planning interventions, implementing interventions, and evaluating which has been adopted by at least three professional nurses' associations in their standards for nursing practice (CNA, 1980; "Nursing standards," 1984; RNABC, 1984). Since a five-step model of the nursing process was adopted for use by nurses in New Brunswick ("Nursing standards"), it will be used as the framework for this study.

The Nursing Process: A Five Step Model

Each step or subprocess of the nursing process is considered to be an integral component of nursing practice and each has received considerable attention in nursing literature. According to Ziegler et al (1986), each subprocess is characterized by identifiable activities or processes which result in a specific product. Each subprocess will now be described in terms of its process and its resulting product.

Collecting Data

Collecting data, sometimes referred to as assessment (Campbell, Finch, Allport, Erickson, & Swain, 1985; Lewis, 1968) or observation (Carrieri & Sitzman, 1971) is widely discussed in the nursing literature. Many authors include details about data collection in their descriptions of the nursing process (Atkinson & Murray, 1986; Berggren & Zagornik, 1968; Bloch, 1974; Crow, 1977; Hunt & Marks-Maran, 1986; Iyer, et al., 1986; Lauri, 1982; Leddy & Pepper, 1985; Lewis, 1968; Marriner, 1983; McGilloway, 1980; Schaeffer, 1974; Ward, 1985; Yura & Walsh, 1983). What emerges from these sources is considerable agreement about the process and product of collecting data.

The Process. Collecting data is widely regarded as a set of activities that include observation, interaction, communication, interview, physical assessment, and measurement, all for the purpose of collecting relevant information about the client's health status. Both objective and subjective data contribute to the emerging data base (Atkinson & Murray, 1986; Iyer et al., 1986; Ziegler et al., 1986). The sources of data include not only the client but also his family and significant others, health care records, and other members of the health care team.

Systematic or structured formats may be used to collect data but opinions concerning their value vary among authors. Brodt (1978), Lewis (1968), McCain (1965), McGilloway (1980) and Williamson (1982) recommend the use of specific taxonomies and structured tools to organize data collection. Aspinal and Tanner (1981) suggest that the risk of missing some important aspect of the patient's condition is reduced when a structured format is used to collect data. Stevens (1974), on the other hand, cautions that while "a universal and uniform system of data collection may be ideal, it rules out any nursing discretion and it reduces both economy and efficiency in care delivery" (p. 18). Her thoughts echo those of Henderson (1982) who maintains that the nursing process itself ignores the subjective and intuitive aspects of nursing and the role of experience, logic and expert opinion in nursing practice. Similarly, Whelton (1979) asserts that while "a guide [for data collection] is important it must not be allowed to become the central focus of the assessment interview, surpassing the importance of the patient" (p. 13).

Other authors (Berggren & Zagornik, 1968; Crow, 1979; Keane, 1981; Kratz, 1977; Marriner, 1983; Yura & Walsh, 1983) refer to the need for systematic data collection but give less attention to format, suggesting instead that a systematic framework should serve only as a reminder for the nurse who, in turn focuses on specific details at her discretion. This perspective on collecting data acknowledges the significant impact which the nurse's knowledge and skill can have on the quality of the data collected. As Boylan (1982) points out, "the better the [nurse's] knowledge base the better will be the assessment" (p. 1444).

Numerous other authors (Atkinson & Murray, 1986; Crow, 1977; Hunt & Marks-Maran, 1986; Putzier & Padrick, 1984; Ziegler et al., 1986) believe that data collection should be guided and organized according to a theory, or conceptual framework. In the past, nurses were encouraged to consider their nursing care in terms of theories such as Maslow's hierarchy of needs or Erikson's developmental stages. More recently specific nursing theories and models have emerged.

Three further characteristics of the data collection phase which are frequently cited in nursing literature are (a) the ongoing and continuous nature of data collection, (b) the supplementary yet complimentary relationship the nurse's data has with data collected by other health care professionals, and (c) the need to record the data in order to save time and to facilitate data analysis. The nursing process is often described in a linear fashion which may give the impression that data collection occurs only when the nursing process is being initiated. In fact, data collection activities begin with the client's admission and continue concurrently throughout the remaining subprocesses of nursing process (Atkinson & Murray, 1986).

The relationship between the data collected by nurses and the data collected by other health care workers is another concern. Crow (1979) says there should be little overlap in the information collected by nurses and doctors. The nurse's data collection should focus on the effects which illness and hospitalization have on the client and his/her family while the doctor's data collection focuses on the illness itself. Leddy and Pepper (1985) and Ziegler et al. (1986) urge the nurse to focus on information required for nursing care and to supplement not duplicate the data collected by other health professionals. Because the various professionals involved with the client are all ultimately concerned with the client's health, their data collection, though specific to their own profession, should be complimentary.

Finally, the data collected must be recorded. McGilloway (1980) says the importance of recording data and observations cannot be overemphasized. The data must be intelligible and readily accessible to nurses and other members of the health care team. While recording the data may take time, it may also save time in the long run because data collected by one nurse becomes available to others (Crow, 1977). Recording the data also serves to assist nurses in identifying their client's problems, strengths, weaknesses and resources (Crow, 1979) and hence, may pave the way for analysing the data.

The Product. The product of data collection activities is a data base which includes information about the physical, emotional, psychological and social factors which contribute to the client's health profile. According to Harrison (1966), Campbell et al. (1985), and McCain (1965) the data base should also include an assessment of the client's resources and strengths. Lauri (1982), Lewis (1968), and McGilloway (1980) include an assessment of the client's potential and capacities in their perspective on data collection while Crow (1979) and Joseph (1980) add an assessment of the client's educational needs in their approach to data collection. It is evident that various authors differ in their beliefs about the content of the data base. Since these authors each write from their own perspective and experience, this variation concerning the content and focus of data collection can be expected. Indeed, Leddy and Pepper (1985) and Ziegler et al. (1986) illustrate that the emphasis of data collection will vary according to the nursing model which the practitioner is using and Baines (1981) points out that different types of information are required for different types of patients.

Apart from being a time to assemble facts about the client, numerous authors (see for example, Campbell, et al., 1985; Crow, 1977; Leddy & Pepper, 1985; Yura & Walsh, 1983) believe the data collection period is also a time to develop rapport and to establish a trusting relationship between the client and the nurse. Rapport and trust are deemed essential to the success of the subsequent subprocesses within the nursing process. Closely related to establishing rapport and trust in the nurse-client relationship are (a) gaining an understanding of the client's behavior and attitudes, (b) developing a grasp of the client's perception of his condition, (c) determining the client's expectations for care, (d) validating the assessment with the client and other relevant sources, and (e) accepting the client as he is. Authors such as Beggren and Zagornick (1968), Harrison (1966), Joseph (1980), Lewis (1968), McGilloway (1980) and Williamson (1982) include these activities in their descriptions of data collection and suggest that collecting data is more than listing or cataloging objective facts about a client. They believe it also includes obtaining the client's subjective appraisal of his/her condition and expectations for care and verifying with the client that these have been accurately captured.

Analysing Data

The concept of data analysis is incorporated into most descriptions of the nursing process, either as a component of the assessment phase (Ashworth, 1980; Atkinson & Murray, 1986; Crow, 1979; Marriner, 1983; Yura & Walsh, 1983) or as a separate subprocess of the total nursing process (Aspinal & Tanner, 1981; Bloch, 1974; Brown, 1981; Carnevali, 1983;

Hunt & Marks-Maran, 1986; Iyer, et al., 1986; Ward, 1985; Ziegler et al., 1986). The purpose of analysing the data is to critically evaluate and interpret the information gathered about the client and to arrive at a decision about the client's nursing care requirements. This decision, often termed the nursing diagnosis, is considered by some to be the most strategic aspect of the entire nursing process (Putzier & Padrick, 1984; Yura & Walsh, 1983).

The Process. Research into the cognitive strategies used by nurses to determine their client's problems suggests that the diagnostic process is far more complex than originally thought (Bourret-Thauberger, 1985; Gordon, 1978). A high level of intellectual skill and the ability to make meaningful judgements based on scientific knowledge and experience are integral aspects of this process (Chambers, 1962; Komorita, 1963; Purushotham, 1981).

Mayers (1983) says the intellectual skills of nurses include lateral, vertical, and discriminative thinking and that these three can be developed to function simultaneously. Lateral thinking is concerned with the generation of new ideas. It is the thinking that nurses use when they scan collections of data and discern one or more possible meanings for that data by viewing it in a variety of configurations. Vertical thinking is problem-solving thinking, that is, defining and stating a problem, determining a potential solution, devising methods to reach that solution, and evaluating the effectiveness of those methods. Discriminative thinking, the final type of thinking in Mayers' triad, involves making judgements regarding the relative importance of each identified problem and the priority each must receive in the client's care.

The scientific knowledge required for data analysis is an amalgamation of knowledge, symbols, and technology not only from nursing but also from the natural and social sciences and from the humanities (Carnevali, 1984). How the nurse uses this knowledge is influenced by both the quantity and quality of her previous experiences. Benner (1984) and Tanner (1984b) both suggest that among the characteristics which distinguish the expert practitioner from her novice counterpart are the number of experiences stored in the long-term memory and the extent to which techniques to categorize and recall knowledge have been refined. Further, Tanner points out that the frequency with which similar experiences occur, the recency of an experience, and the profoundness of that experience all influence the nurse's analytic and diagnostic abilities.

While Mayers (1983) suggests that the nurse should engage in lateral thinking to generate ideas from the data, others (Putzier & Padrick, 1984; Tanner & Hughes, 1984; Williamson, 1982) suggest that the nurse needs to cluster the data into meaningful groups according to some predetermined categorization or a theoretical framework. Strict adherence to one theoretical framework may impose limits on the scope and range of thinking a nurse is able to carry out. Flexibility ~~and judgement~~ on the part of the nurse should ensure that clustering does not preclude the lateral thinking required to identify patterns in the data, patterns which may yield inferences about the client's condition.

The Product. The product of data analysis consists of inferences about the client's condition and the etiological factors which are believed to underlie the inferences. There are three types of inferences which may emerge from client centered data. The first is that there are in fact no problems which require nursing intervention because the client is able to balance his stressors and demands with his coping skills and resources (Carnevali, 1983). The second is that there are one or more problems which are amenable to nursing intervention. Finally, there may be an inference that while no problem exists at present, there is a potential for at least one problem which may be offset through nursing intervention (Yura & Walsh, 1983). It is important that when making inferences, the nurse considers both actual and potential problems to ensure that the resulting nursing care is comprehensive. As with all aspects of the nursing process, the inferences generated and the problems identified must be validated with the client to confirm that the particular problems do exist (Crow, 1979; Gordon, 1978).

Along with generating inferences about the client's condition and identifying problems, the nurse should identify the etiological factors which are believed to be creating the client's problems (Gordon, 1978; Yura & Walsh, 1983; Ziegler et al., 1986). According to Aspinal and Tanner (1981) and Leddy and Pepper (1985) it is the etiologic statement which individualizes the nursing diagnosis, suggests which independent nursing actions might be appropriate in each case, and provides rationale for the intervention strategies.

In conclusion, while nursing care can proceed without a thorough analysis of the situation in place, Putzier and Padrick (1984) view such care as little more than symptom management. The analytic or diagnostic process in nursing serves to identify nursing care requirements, to substantiate their existence, and to organize the subsequent nursing care plan.

Planning the Intervention

The purpose of care planning is to set goals and prescribe nursing actions which address the problems identified during data collection and data analysis. During planning for nursing intervention, the goals of nursing care are coupled with the means to achieve them (Leddy & Pepper, 1985; Schaefer, 1974).

The Process. The process of planning involves identifying goals and objectives for nursing intervention. Leddy and Pepper (1985) suggest that these goals be categorized according to their focus. The foci Leddy and

Pepper would use are health restoration, health maintenance and health promotion. Brodt (1978) offers six dimensions of nursing practice for use in categorizing nursing goals. These are "(1) the prevention of complications; (2) the preservation of body defences; (3) the detection of changes in the body's regulatory systems; (4) the reestablishment of the client with the outside world; (5) the implementation of the physician's prescribed diagnostic and therapeutic acitvity; and (6) the provision of comfort and safety" (p. 258). In comparison, Yura and Walsh (1983) are not so concerned with the specific taxonomy of classification but believe that "problems [and goals] be classified so that the integrity and unity of the human person [is] maintained" (p. 172).

The goals for nursing intervention should state the observable behaviors which are desired and which can be expected to occur as a result of that intervention. Hence, goals provide the criteria for evaluating the subsequent nursing care (Crow, 1977; Marriner, 1983; McGilloway, 1980; Yura & Walsh, 1983). The goals must be individualized and realistic, taking into account the client's strengths, resources, and capabilities (Berggren & Zagornik, 1968; Haller & Reynolds, 1983; McGilloway). Environmental conditions which could affect the client's ability to reach the desired goals must be considered (Iyer et al., 1986; Orem, 1985; Wells, 1981). The resources required to assist in reaching the desired goals must be identified (Iyer et al., 1986; Leddy & Pepper, 1985; Marriner, 1983). A suitable time frame for achieving the desired outcomes must be included in the goal statement (Yura & Walsh, 1983). Goals may be long range, intermediate range or short range. Keane (1981) suggests that in certain situations, it may be more beneficial to state several short-term goals which will eventually lead to a long-term outcome than to state one long-term goal by itself.

During the planning phase of the nursing process the nurse should translate the desired goals into specific nursing actions in order to make the plan operational (Berggren & Zagornik, 1968). These prescribed nursing actions must be based on scientific principles and be selected on the basis of their therapeutic effectiveness (Marriner, 1983; Whelton, 1979; Yura & Walsh, 1983). According to Carnevali (1983) it is the prescribed nursing actions or nursing orders which individualize nursing care. She acknowledges that while standard care plans provide an efficient method of communicating expected nursing actions for specific conditions, nurses should avoid "copying standard orders or presuming that these take the place of individualized care plans" (p. 219). Standard care plans and nursing orders should serve only as a point of departure for identifying appropriate nursing actions and creating individualized care plans.

A critical component of the process of care planning is collaboration with the client and/or his family and significant others and with other members of the health care team. Haller and Reynolds (1982) report that when the nurse and client mutually set goals there is more effective goal achievement, greater client satisfaction and greater staff satisfaction. Further, from an ethical viewpoint, they regard a collaborative approach as essential because clients have a right to have a voice in issues relating to their health. Support for the views of Haller and Reynolds is widely available in nursing literature (see for example: Joseph, 1980; Keane, 1981; Leddy & Pepper, 1985; Marriner, 1983; Pinnell & Meneses, 1986; Schaefer, 1974; Williamson, 1982; Yura & Walsh, 1983).

Collaboration with other members of the health care team is an equally important aspect of planning nursing interventions. Philpott (1985) points out that the safety of the nursing care plan is dependent, in part, on its coordination with the medical care plan. Atkinson and Murray (1986) and McGilloway (1980) stress that the nursing care plan must be compatible with and supportive of the work of other professionals involved with the client. The effectiveness of the care plan is minimized if a high degree of compatibility does not exist among the plans and approaches to care prescribed by the various professions involved with the client.

The Product. The product of planning activities is a nursing care plan. For students in nursing, writing a care plan is usually a rigorous exercise designed to facilitate learning about the client's health problems and strategies for solving them. Hence, the educational tool for care planning is often complex and time consuming (Mayers, 1983). In the service setting, the purpose of the written care plan is to communicate relevant information about the client effectively and efficiently to all personnel legitimately involved in the client's care (Crow, 1977; Mayers, 1983; McGilloway, 1980; Philpott, 1985; Yura & Walsh, 1983). In so doing, the care plan (a) fosters a better understanding of the client, (b) enhances continuity of care, and (c) saves time because each nurse does not have to start the nursing process from scratch. However, the sharing of care plans must be done in confidence (Williamson, 1982).

Carnevali (1983) believes the nurse must sign her 'nursing orders' just as the physician must sign his medical orders. The signature not only demonstrates accountability for the nurse's decisions but it also permits colleagues to give feedback on the care plan, explore the rationale of a prescribed action, obtain clarification, and judge the level of expertise that went into the care plan.

Finally, Philpott (1985) believes "a reasonable care plan is not an inflexible and unchanging prescription [but rather,] it is revised as often as necessary and according to the needed reordering of priorities as indicated by the current status of the patient" (p. 88).

In summary, nursing care planning yields a blueprint for nursing action which establishes goals and identifies appropriate nursing interventions. The plan provides direction for the ensuing nursing care and a framework for subsequent evaluation activities.

Implementing the Intervention

Florence Nightingale, the founder of modern nursing, said that nursing should "put the patient in the best condition for nature to act upon him" (p. 75). Since Nightingale's era, nurse theorists have sought to further define nursing and to articulate the activities which constitute nursing intervention. Fitzpatrick and Whall (1983) summarized and analysed the work of numerous nurse-theorists. Table 2.1 provides highlights from their findings and illustrates various views of the process of nursing intervention.

While the nurse-theorists provide valuable direction for nursing practice, they describe nursing interventions in broad and general terms. To obtain a more specific picture of what it means to implement nursing care and to identify the critical components and characteristics of nursing intervention, it is necessary to explore the literature from the domains of nursing practice and nursing education.

The Process. The activities which make up nursing interventions are many and varied. Comforting, both physical and psychological, are the most fundamental

TABLE 2.1

Definitions of Nursing and Nursing Interventions Identified in Selected Nursing Models

Nurse Theorist	Definition of Nursing	Nursing Interventions
Orlando	Interaction with a patient who has a need in order to improve the patient's health. Includes validation of both the need and the help.	Patient's needs determine nursing acts.
Wiedenbach	A deliberative blend of thoughts, feelings, and overt actions... practicted in relation to an individual who is in need of help.	Patient behavior which indicates a need-for-help triggers nursing activity.
Henderson	The assistance of the individual, sick or well, in activities contributing to health or recovery that she/he would perform had she/he the strength, will or knowledge.	Deliberative approach to meet the 14 components of nursing care.
Levine	Human interaction; incorporates scientific principles in use of the nursing process.	Holistic care individualized to each person's needs; nurse supports the person's adaptation.
Orem	A human service designed to overcome human limitations in self care action for health realted reasons.	Nursing acts are derived from judgements as to why patients require nursing.
Roy	A process of analyses and action related to the care of the ill or potentially ill person.	Nursing intervention is carried out within the context of the nursing process and involves manipulation of stimuli.
Newman	Nursing science focuses on facilitating the health of persons.	Nursing practice assists persons to utilize their own resources to attain higher levels of consciousness.

Adapted from Fitzpatrick and Whall (p. 340) nursing interventions cited in the nursing literature (Lewis, 1968; Orem, 1985; Pepler, 1977; Simmons, 1984). Pepler defines comforting as "relieving or minimizing existing physical and/or psychological distress associated with any deviation from the optimal condition in a given situation" (p. 94).

Closely related to comforting is supporting the client (Carrieri & Sitzman, 1971; Lewis, 1968; Orem, 1985; Simmons, 1984). Nursing support involves listening to the client, focusing on his concerns and imparting the necessary strength and courage to cope with problems. Manipulating, modifying or controlling both the internal and external environments of the client are nursing activities which are highly crucial to the achievement of desired goals (Henderson, 1965; Lewis; Orem; Wells, 1981; Whelton, 1979; Yura & Walsh, 1983).

Teaching is another widely accepted component of nursing intervention (Joseph, 1980; Leddy & Pepper, 1985; Lewis, 1968; Marriner, 1983; Orem, 1985; Pepler, 1977; Simmons, 1984; Wells, 1981; Whelton, 1979). According to Pepler, teaching can be incidental or formal and should include media and demonstrations when these are appropriate.

Other activities have been identified in the literature as components of nursing intervention: protecting the client from hazards (Lewis, 1968; Pepler, 1977), counselling (Lewis; Pepler), advocating on the client's behalf (Pepler), promoting the client's rehabilitation (Henderson, 1965; Wells, 1981), managing available resources (Williamson, 1982), providing leadership, delegating and supervising nursing activities (Keane, 1981; Leddy & Pepper, 1985; Schaefer, 1974; Yura & Walsh, 1983), and seeking and accepting supervision when necessary (Orem, 1985). Not every activity is required with every client. It is therefore necessary that the nurse have a broad knowledge base and exercise sound judgement in selecting and carrying out the activities appropriate to each situation.

Nursing interventions, regardless of the specific activities involved, should be provided in a manner which incorporates and contributes to the wider multidisciplinary plan of care (Atkinson & Murray, 1986; Keane, 1981; Williamson, 1982). It may be necesary for the nurse to carry out a prescribed portion of the medical plan of care (Henderson, 1965; Leddy & Pepper, 1985; Wells, 1981), or it may be necessary to actively collaborate with the client, with other members of the nursing team, and with the other members of the health care team to decide who can best contribute to the achievement of goals and in what ways (Pepler, 1977; Schaefer, 1974; Yura & Walsh, 1983). As nursing interventions are carried out the nurse should continue to involve the clients in their care, remain sensitive to their feelings, and respect their individuality. Many authors consider communication skills are crucial to the success of nursing activities (Keane, 1981; Leddy & Pepper, 1985; Lewis, 1968; Marriner, 1983).

The Product. The product of nursing intervention is the client's actual response to those nursing actions (Ziegler et al., 1986). Both the nursing interventions and their resultant outcomes must be accurately recorded in the client's file and in adequate detail to provide documented evidence that the nursing interventions have taken place (Atkinson & Murray, 1986; Iyer et al., 1986; Ziegler et al., 1986).

Nursing intervention is, in summary, a purposeful goal-directed activity which arises out of the nursing care plan. It consists of a variety of activities carefully selected to facilitate the achievement of goals and objectives for the individual client. The outcomes of nursing interventions are the focus for evaluation activities.

Evaluation

Evaluation is concerned with the client's status and with his movement toward specified goals. Its purpose is to validate the contribution which nursing care has made to the client's overall condition (Carnevali, 1983; Lewis, 1969).

The Process. Evaluation is an ongoing activity which is interrelated with the other subprocesses of the nursing process. Nurses must be alert to the impact of their actions throughout the entire nursing process (Keane, 1981;

Leddy & Pepper, 1985; McGilloway, 1981; Schaefer, 1974; Williamson, 1982; Whelton, 1979). In addition to this ongoing evaluation, there is also specific evaluation which follows the implementation of the care plan. This terminal evaluation examines "how the client responded to the planned action" (Yura & Walsh, 1983, p. 193).

According to Carnevali (1983), the observations which make up evaluation should focus on goal-related criteria, that is, on the objectives established in the care plan. Many authors support her view (Harrison, 1966; Joseph, 1980; Leddy & Pepper, 1985, McGilloway, 1981; Orem, 1985; Williamson, 1982; Yura & Walsh, 1983). Assuming the objectives have been written in client-centered behavioral terms as recommended in the planning literature, the evaluation process involves returning to the client to determine his/her progress toward meeting the objectives.

Returning to the client encompasses both objective and subjective activities. The objective activities include appropriate measurements of concrete phenomena which represent the client's response to care. Subjective evaluation on the other hand, includes the opinions, perceptions and feelings about the care which are expressed by the client (Bergman, 1982; Crow, 1977).

Not only is the client an integral part of the evaluation process but also the other members of the nursing and health care team should be included in the process particularly when revisions to the total plan of care appear necessary (Schaefer, 1974).

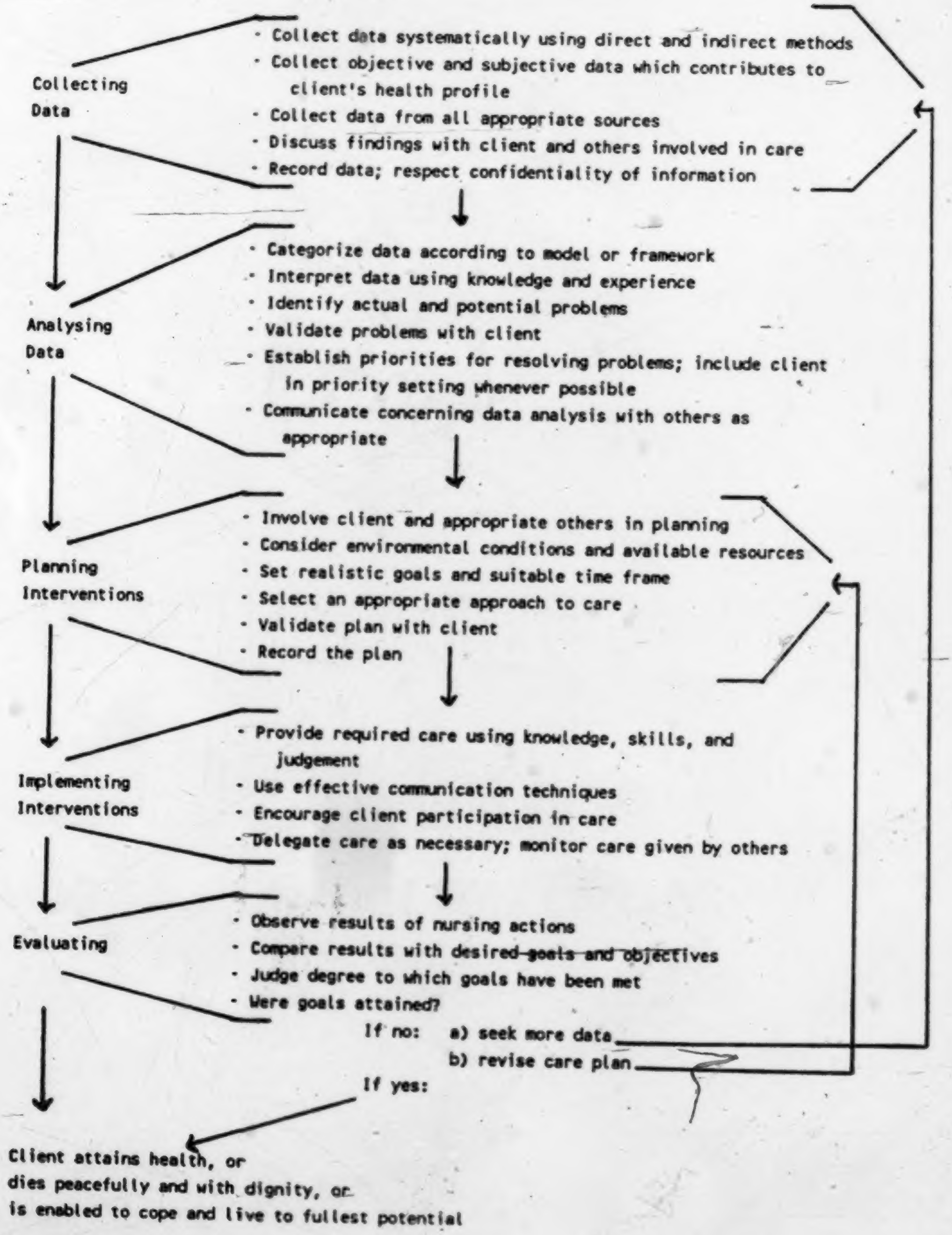
The Product. The product of evaluating nursing care consists of the conclusions which are drawn following careful consideration of the client's response to nursing interventions and progress toward desired goals. The conclusions drawn during evaluation may indicate that it will be necessary to modify goals, select alternate interventions, or adjust the timetable. If the goals have been met and no new ones emerge, the nurse-client relationship can then be terminated (Leddy & Pepper, 1985).

Summary

The nursing process provides a systematic framework for the nurse to use in any practice setting. While exact labels and terms used to describe the process may vary among authors, there are at least five phases or subprocesses identifiable within the nursing process literature. These include collecting data, analysing data, planning the interventions, implementing the interventions, and evaluating. Figure 2.1 shows the critical content of each subprocess and the cyclic, interrelated nature of that content. It is these subprocesses which form "the core and essence of nursing" (Yura & Walsh, 1983, p. 1), and provide a cognitive base for autonomous nursing practice (Leddy & Pepper, 1985).

FIGURE 2.I

The Nursing Process



- Collect data systematically using direct and indirect methods
- Collect objective and subjective data which contributes to client's health profile
- Collect data from all appropriate sources
- Discuss findings with client and others involved in care
- Record data; respect confidentiality of information

- Categorize data according to model or framework
- Interpret data using knowledge and experience
- Identify actual and potential problems
- Validate problems with client
- Establish priorities for resolving problems; include client in priority setting whenever possible
- Communicate concerning data analysis with others as appropriate

- Involve client and appropriate others in planning
- Consider environmental conditions and available resources
- Set realistic goals and suitable time frame
- Select an appropriate approach to care
- Validate plan with client
- Record the plan

- Provide required care using knowledge, skills, and judgement
- Use effective communication techniques
- Encourage client participation in care
- Delegate care as necessary; monitor care given by others

- Observe results of nursing actions
- Compare results with desired goals and objectives
- Judge degree to which goals have been met
- Were goals attained?

If no: a) seek more data
b) revise care plan
If yes:

Client attains health, or
dies peacefully and with dignity, or
is enabled to cope and live to fullest potential

Adapted from Robertson, 1981 (p. 1299)

Nursing Standards for use in New Brunswick

The members of the Nurses Association of New Brunswick adopted four major standards for nursing practice during their annual meeting in May 1984 ("Nursing Standards", 1984). One of these standards addressed the use of the nursing process in carrying out professional nursing practice (see Appendix A for the complete standard). Critical analysis of this nursing process standard, and its comparison with nursing literature related to the nursing process revealed that it does reflect much of the current thinking about the nursing process (see Appendix B for a tabulation of the nursing process standard, its critical content, and supporting references). It is instructive however, to examine the differences between the standards document and the nursing process literature.

One difference between the nursing process standard and the nursing process literature concerns the nature of the relationship between the nurse and the client. The nursing process standard does not specifically address the nature and characteristics of the relationship between the nurse and the client. The nursing process literature however frequently refers to the interrelatedness of the nurse-client relationship and the nursing process (Campbell, 1985; Crow, 1977; Keane, 1981; Leddy & Pepper, 1985; Lewis, 1968; Marriner, 1983; Simmons, 1984; Yura & Walsh, 1983). This exclusion does not mean that nurses in New Brunswick do not acknowledge the importance of the nurse-client relationship since Standard III of the same document goes on to deal specifically with expectations for the relationship between the nurse and client. Devoting an entire standard to the nurse-client relationship underscores the importance of that relationship to professional nursing practice.

Confidentiality is another topic which is addressed in the nursing process standard differently than in the nursing process literature. The nursing process standard refers to the confidential nature of data collected during the nursing process and further implies that confidentiality is necessary throughout the nursing process with references to 'appropriate communication' in each of the subprocesses. Williamson (1982) includes maintaining the client's problems in confidence as part of the nursing process, however, the topic of confidentiality is usually addressed in the nursing literature related to ethics (CNA, 1985; Fromer, 1981; Storch, 1982). Inclusion of confidentiality in the nursing process standard reflects the respect and concern nurses should have for the nurse-client relationship and illustrates that the ethics of any professional group cannot be separated from the practices of that group. Indeed, Fromer (1981) says that confidentiality is one of the major elements of any professional-client interaction. Therefore, a statement about confidentiality can appropriately be included in a nursing process standard.

The subprocess of analysing data is the source of at least two differences between the nursing process standard and the nursing literature. One difference is related to etiology and the second difference is related to priority setting. In the nursing process standard, interpretation of data and identification of problems are addressed in general terms. However, there is a body of nursing literature which states that nurses need to consider the etiology underlying their client's problems when they are analysing client centered data (Aspinall & Tanner, 1981; Gordon, 1978; Leddy & Pepper, 1985; Putzier & Padrick, 1984; Yura & Walsh, 1983). These authors believe it is necessary to consider etiology because it is the underlying cause of the client's problem which ultimately determines what the nursing actions will be. Nursing standards must be broad and general in order to apply to nurses in any practice setting but etiology is not a concept unique to one type of nursing. There is an underlying etiology present in every client problem. To incorporate a statement concerning etiology into the nursing process standard related to analysing data would perhaps strengthen this standard by giving it greater clinical significance and bringing it more in line with current thinking related to nursing diagnosis and diagnostic reasoning in nursing.

The second difference between data analysis as described in the nursing process standard and data analysis as described in one portion of the nursing literature concerns priority setting. Priority setting is described in the standard as one component of analysing data. Many authors describe priority setting as an aspect of planning nursing interventions (Atkinson & Murray, 1986; Keane, 1981; Leddy & Pepper, 1985; Schaefer, 1974; Yura & Walsh, 1983; Whelton, 1979). Hunt and Marks-Maran (1986) and Zeigler et al (1986), however, believe that establishing priorities for care is a discriminative and cognitive function which is closely intertwined with analysing data. Conceptually, priority setting can fit with either analysing data or planning nursing interventions. With the movement from a four-step model of the nursing process to a five-step model, the concepts inherent in priority setting appear to fit well into the category of data analysis, and this is the placement found in the New Brunswick model.

According to the Nurses Association of New Brunswick a standard "is a generally accepted written expectation amenable to measurement through the development of specific behaviors against which actual performance can be judged" ("NBARN's document on proposed standards," 1984, p. 2A). Within the nursing process standard of the Nurses Association of New Brunswick, specific behaviors have been identified for use in defining the nursing process and for judging nursing performance. This nursing process standard is a broad statement designed to apply to nurses in any practice setting, and represents, in the generic sense, what most authors claim the nursing process is all about.

Research into the Nursing Process

There has been relatively little research into the nursing process reported in the nursing literature. Hegyvary (1979) used the term nursing process but her work was related to aspects of the quality of nursing care and not the nursing process as it is being defined in this study. Within the Canadian context, no research reports could be found which specifically addressed the use of the nursing process in practice. The research which has been reported in the literature has been carried out in the United Kingdom where the nursing process was introduced in the 1970's as a method for the delivery of nursing services.

Bowman, Parsons & Pointon (1983) concluded that the nursing process was an ideal tool for use in delivering total patient care though the rigor of their study was difficult to determine from their published report. On the other hand, Hurst (1983) concluded that the nursing process method as she defined it was a less appropriate method to provide nursing services than the patient-allocated method in use in her hospital. Again, the results are difficult to interpret because variables and sources of bias were not clearly identified.

Miller's (1985a) report of a study to test the nursing process in a geriatric setting provided greater detail. The investigator carried out a study of the impact of the transition from task-oriented nursing to a nursing process approach on patient outcomes. She observed that a considerable proportion of the 'dependency' experienced by long-stay geriatric patients was related to the type of nursing care they were given and she believed that use of the nursing process was associated with better patient care. Her report provided no information on the validity and reliability of the tool used to measure dependency.

Bowman, Thompson & Sutton (1983) reported on a study designed to determine the influence of three different levels of inservice education on nurses' attitudes toward the nursing process. The authors admit their study was limited by their instrument which required that nurses respond to statements of beliefs about the nursing process. The respondents were left to subjectively define the nursing process and since the nursing process may have had different meanings to different people, the subjects' responses may not have been valid in terms of the researcher's intended purpose.

Milne (1985) wished to identify variables which prompt nurses to use the nursing process in their practices. He studied a group of fifty-five nurses who had taken a one week course in behavior therapy that included instruction in writing nursing process care plans. During the weeks following the course he identified nurses who became 'implementers', that is, nurses who wrote and carried out care plans (N=29) and nurses who became 'resistors' to writing and carrying out care plans (N=26). In a retrospective analysis of variables associated with the groups, he determined that demographic variables and learning during the course were not good predictors of the nurses' implementation of the nursing process. He suggested that environmental factors in the ward setting may have been responsible for the differences between the two groups. He recommended that in future studies greater emphasis be placed on what happens in the ward environment.

Rhodes (1980, 1985) launched a major project in the United Kingdom to assess the usefulness of the nursing process model in nursing practice. His purpose was to test whether or not three conditions which he believed to be necessary for the successful implementation of the nursing process exist in British health services. His initial reports have addressed only various aspects of instrument development. He has not yet reported findings specifically related to the nursing process.

It is not possible to generalize the findings of these various studies to all nursing. These findings do however generate useful ideas and stimulate thinking for future research.

The Nursing Process in Practice

The nursing literature is replete with illustrations of the nursing process as it is used in various practice settings. Charles, Truesdell and Wood (1982), Fay (1976), Gooch (1981), Hildebrand (1978), Joseph (1980), and

Robertson (1981) are but a few examples of the many articles related to nurses' use of the nursing process which can be found in journals from both the United States and the United Kingdom. These numerous publications concerning the nursing process provide evidence that the nursing process is a familiar concept among nurses in many parts of the world.

De la Cuesta (1983) concluded that in the United States the nursing process is an ideology and a vehicle to achieve professional status. It is a tenet underlying many of nursings' practices. According to Phaneuf (1976) the nursing process became accepted and institutionalized with the standards for nursing practice adopted by the American Nurses' Association in 1972 and she believes the majority of nurses use it. In the United Kingdom, De la Cuesta observed that the nursing process is viewed chiefly as a tool for the delivery of nursing care. There is evidence of skepticism and debate over the worth of the nursing process (Henderson, 1982; Hurst, 1983; Mitchell, 1984) but there is also evidence of enthusiasm over this approach to nursing care. Baines (1981), for example, stated that the nursing process approach to care allows the nurse to have greater involvement in patient care and hence increased job satisfaction. Bowman, Parsons, and Pointon (1983) concluded that the nursing process is:

> an ideal tool with which to provide total patient care [with the added benefits of] job satisfaction, professional development, improved learner education and involvement,

> increased desire among trained staff to remain at the bedside ... and reduction in staff turnover (p. 35).

Yet, despite its acclaim, nurses in both the United States and the United Kingdom have observed that the nursing process is not being used to any appreciable extent in clinical practice (Ashworth, 1980; De la Cuesta; Harris, 1979; Kirwin, 1980; Lauri, 1982). In fact, Milne (1985) says "one of the biggest problems currently facing the nursing profession is that of implementing the nursing process" (p. 39). Ashworth, Castledine & McFarlane (1978) noted that while many nurses say they use the nursing process they (a) base their plans on inadequate information and assumptions rather than on accurate observations, (b) concentrate their plans on the client's medical requirements and not necessarily on the nurse-controlled aspects of the client's care, (c) fail to state the specific objectives of their care, (d) fail to record their plans, (e) rarely evaluate their care, and (f) frequently do not include the client's input when planning and delivering nursing care. To what extent are these observations true? What determines the extent to which nurses use the nursing process clinical practice? Several factors which are thought to influence nurses' clinical practices have been identified in the nursing literature. These include the values and beliefs of the nurse, his/her education and experience in nursing, and various aspects of the work environment.

Values and Beliefs

The values, beliefs, and attitudes of nurses are among the factors which are thought to significantly influence nurses' use of the nursing process. Ashworth (1981) cites nurses' motivation as a major influence over the success of the nursing process in practice while Castledine (1981) cites commitment to the nursing process as a significant factor in its success. Lauri (1982) identifies professional consciousness and attitudes of staff toward their work as important to the success of the nursing process. Miller (1985b) believes that much of an individual nurse's practice is determined by his/her personal attitude toward what is perceived as the reality of the practice world and that "every nurse has a private image of nursing which influences his or her perceptions" (p. 417). Miller further believes that this image is built upon assumptions and beliefs which are acquired through experience with nursing 'as it is' in the real world. These authors are suggesting that nurses' practices will be influenced by how they perceive their work settings and by what they believe and value in their nursing practices.

Education

The level of education in nursing which the nurse holds and the amount and type of specific instruction in the nursing process that the nurse has received are factors which may influence the extent to which the nursing process is used in practice. Castledine (1981) identifies both the educational background of nursing staff and in-depth knowledge and understanding of the nursing process as two significant factors for successful implementation of the nursing process. However he does not elaborate on these or document specific evidence to support his views. Aspinall (1976) found that nurses with baccalaureate degrees were able to identify significantly more problems from a written case situation than either nurses with associate degrees or nurses with diploma preparation.

McMillan (1985) compared two groups of recent nursing graduates - one group from baccalaureate degree programs and the other group from associate degree programs. Her unit of comparison was scores on Professional Performance Examinations, criterion referenced examinations which compared examinees with predetermined standards. She found that the two groups did not differ significantly on the patient management sub-score of the examination. According to McMillan, patient management was synonomous with the nursing process. While this finding may have been due to the inability of the examination to discriminate between the two groups, it may also indicate that there were fewer differences between the graduates of the two types of programs than previously thought. The evidence concerning the influence of basic educational preparation over the quality of the nursing process therefore remains inconclusive.

Education may also refer to specific in-service instruction in nursing process. Robertson (1981) observed that nurses in his area had difficulty setting and writing objectives. Based on this observation, he went on to initiate in-service training in the nursing process with every new employee. Though it is difficult to determine the rigor of his study and to interpret his findings from this report, he indicates a willingness to implement changes based on his findings and seems to believe that the degree to which nurses have been educated in the nursing process and understand it will affect their ability to use it in practice.

Bowman, Thompson & Sutton (1983) tested the influence of different levels of specific education related to the principles and practices of the nursing process on nurses' attitudes toward the process. Their analysis indicated that a structured program was more beneficial in creating a positive attitude toward the nursing process than a less structured approach. It is important to note, however, that they did not report anything about the validity and reliability of their instrument to measure attitudes and thus their findings must be viewed cautiously.

Hentinen and Sinkkonen (1985) evaluated nurses mastery of process thinking and use of the nursing process model following the implementation of a specific program designed to introduce these concepts into the care of patients with myocardial infarctions. Nurses involved in the program were monitored over a two year period. All phases of the nursing process were documented better in the patients' records at the end of the study than at the beginning and "nurses' opinions about the applicability and usefulness of process thinking in nursing practice became more positive during the program" (p. 412). If it is true that specific instruction in the nursing process is associated with more positive attitudes about it, then it seems reasonable to expect that specific instruction in the nursing process may also be associated with a better understanding of it and an increased ability to carry it out.

Experience

The role of experience in determining how one carries out any function or skill cannot be denied. Henderson (1982) acknowledged the value placed on experience when she said that "often... the best and only available guide for the nurse's intervention is the opinion of the more experienced" (p. 108). Benner (1984) believes that clinical knowledge and expertise are gained over time and by applying the Dreyfus Model of skill acquisition to nursing, was able to identify and describe five categories of skill among nurses ranging from novice to expert.

Broderick and Ammentorp (1979) concluded that experts and novices varied in the ways they processed data to arrive at problem solutions. Aspinall and Tanner (1981) observed that expert clinicians differed from novices in the number of plausible alternatives they considered in their problem solving. Tanner (1984a) identified differences between novice and expert clinicians in several facets of their practices, two of which relate to this study. She found that experts used cues and patterns learned from previous experiences to gather information which had the greatest diagnostic value for them and that they were able to narrow in on problems more accurately than novices.

However, not all experienced practitioners have the expertise which Benner (1984) and others have described. Davis (1974) observed that there was a significant negative relationship between the number of years nurses had been working and their performance on a number of variables. Her finding was consistent for nurses with diploma preparation in nursing, those with baccalaureate preparation in nursing, and those prepared as clinical nurse specialists. It is important to recognize that experience does indeed influence how nurses approach their clinical practices but that the nature and extent of that influence is not clearly understood.

Time and Numbers of Clients

Frequently cited impediments to the use of nursing process are insufficient time, inadequate numbers of staff, and numbers of clients (Ashworth, 1980; Kirwin, 1980; Leddy & Pepper, 1985; Thompson, 1979). These impediments can easily be translated into such practical considerations as the number of clients under each nurse's care during a usual shift, the number of consecutive shifts a nurse spends assigned to the same clients, and the length of time a client remains on a given unit. While Ashworth argues that using the nursing process saves time and provides for more efficient and organized care when staff numbers are down, it is nevertheless obvious that the length of time available to spend with clients will influence how the nursing process is carried out.

Environment

The environment may influence how the nursing process is implemented. The environment encompasses both the physical characteristics of the unit and the ambience or atmosphere on the unit. Bowman, Thompson & Sutton (1983), in a study of the influence of educational strategies on implementation of the nursing process, recognized that less overt factors such as the social system on the unit, organizational development of the facility and the leadership patterns of unit administrators were no doubt influencing their findings. Similarly, Ashworth (1980) acknowledged the effects, both positive and negative, which senior nursing staff can have over the nursing process. She believes that support from senior and administrative staff is needed if the full benfits of the nursing process are to be achieved. Milne (1985) reported on a study designed specifically to test the effects of interpersonal environment on the nursing process. In his study, nurses who received peer support for developing care plans, maximal prompting to initiate care plans, and feedback and praise for the plans they developed, prepared significantly more care plans than a similar group of nurses who received only classroom instruction in care planning. His finding corresponds with the earlier findings of Hegyvary and Haussman (1976) who reported that the organizational structure of the unit, the style and characteristics of leadership on the unit, and staff attitudes all influenced the quality nursing care delivered. More recently Shea (1986) found that environmental factors on the nursing unit influenced nurses' ability to write and use care plans. In summary, the environment, both physical and interpersonal, are believed to influence how nurses practice.

Paperwork

Record keeping and charting formats are the foci of several comments concerning impediments to the nursing process. Ashworth (1980) identifies inadequate record forms as one of the major constraints to implementing the nursing process. She considers many Kardex forms to be inadequate because they are too small to include all the necessary information or they are of little value because they are not readily accessible for nurses to read and update on a regular and ongoing basis. Kirwin (1980) found that nurses in America "tried to think through the [nursing] process but [found] documentation impossible" (p. 36). In Kirwin's report, staffing shortages and hence the time element is implied to be responsible for this problem with documentation. If time is a critical factor, then more efficient recording systems may alleviate part of the problem.

According to Mayers (1983) it is also necessary to recognize the differences between complex educational tools and formats that are used by students in writing care plans and functional service tools that can be used by staff nurses to communicate relevant information rapidly and efficiently. Failure to recognize this difference may lead to the development of tools for use in service settings which are far more complex than they need to be.

Robertson (1981) found that introduction of the nursing process did increase the amount of paperwork for his staff but they perceived that written nursing histories and care plans were more professional and more legally acceptable than their previous customary practices. Similary, Miller (1985a) concluded that the nursing process increased the amount of paperwork required of nurses but that the nursing process was also associated with better nursing care and measurable improvement in client outcomes. The nursing process does entail paperwork but the paperwork is considered to be worth it by at least some writers.

Summary

A review of the nursing literature revealed little research on the use of the nursing process. In studies which reported on the nursing process this variable was frequently peripheral to the major focus of the research. It is a topic which has been described in detail by numerous authors in the nursing literature. There is considerable consensus among the authors in their descriptions of the nursing process and opinions concerning variables which influence nurses' ability to use the nursing process in their practices. The values and beliefs of nurses, their education and experience in nursing, and variables in the work setting all appear to be factors that may influence the ways in which nurses provide patient care. If nurses practice according to their ideologies and values as Schrock (1981) suggests and their ideologies are determined largely by experience with nursing 'as it is' as Miller (1985b) suggests, and if nursing 'as it is' does not espouse the nursing process model, then the nursing process may not be used to any appreciable extent in clinical practice. This raises several questions concerning the use of the nursing process:

1. How frequently do nurses perceive themselves to be using the nursing process in their clinical practices?
2. How frequently do nurses perceive that they ought to be using the nursing process in their clinical practices?
3. What is the relationship between nurses' perceived practices and their beliefs about what they ought to do in practice?

4. What are the variables which significantly influence nurses perceived practices and their beliefs about what they ought to do?

CHAPTER III

RESEARCH METHODS

Design of the Study

This association-testing study (Diers, 1979) was designed to determine the extent to which nurses perceive themselves to be carrying out activities representative of the nursing process in their clinical practices and to compare these perceived practices with their beliefs about the nursing process. Additionally, the study was designed to examine the influence of selected variables which were suggested from the nursing literature to be influential over nurses' practices. The study employed survey techniques and was dependent upon respondents' self-reports of their practices and beliefs. No attempt was made to change or influence the respondents' work environments or work loads. No specific observations of individuals' practices were made during the data collection period.

Hypotheses

The following hypotheses were developed for testing in this study:

I. There will be a significant positive correlation between the percentage of patients with whom nurses perceive themselves to be carrying out activities representative of the subprocesses of the nursing process in their clinical practices and the percentage of those same patients with whom nurses believe they ought to be carrying out these activities in their clinical practices.

II. Nurses with baccalaureate preparation in nursing and/or nurses who have taken university courses in nursing for credit toward a baccalaureate degree in nursing will report carrying out the activities representative of the subprocesses of the nursing process with a significantly greater percentage of their patients than nurses with diploma preparation in nursing.

III. There will be a significant negative correlation between the number of years experience in nursing and the percentage of patients with whom nurses perceive themselves to be carrying out activities representative of the subprocesses of the nursing process.

IV. Nurses who report having heavy or unusually heavy workloads will report carrying out the activities representative of the subprocesses of the nursing process with a significantly smaller percentage of their patients than nurses who report having reasonable, light, or unusually light workloads.

V. There will be a significant negative correlation between the number of patients which nurses report caring for in their daily assignments and the percentage of patients with whom nurses perceive themselves to be carrying out activities representative of the subprocess of the nursing process.

VI. There will be a significant positive correlation between nurses perceptions of the interpersonal environment in which they work and the percentage of patients with whom nurses perceive themselves to be carrying out activities representative of the subprocesses of the nursing process.

Definitions

Nurse refers to an individual who meets the criteria of the Nurses Act (Statutes of the Province of New Brunswick, 1984) and is currently employed full time on selected nursing units in a New Brunswick hospital.

Standards for Nursing Practice are "generally accepted written expectations amenable to measurement through the development of specific behaviors against which actual performance can be judged" (CNA, 1980, p 15).

The Nursing Process is an organized, systematic and deliberate approach to nursing care which forms a base from which nursing actions can proceed (Yura & Walsh, 1983). A five step model of the nursing process was selected for use in this study.

Subprocesses of the Nursing Process are five identifiable phases or steps which make up the nursing process: collecting data, analysing data, planning interventions, implementing interventions, and evaluating.

Activities representative of the subprocesses of nursing process are nursing activities which have been selected to represent the concepts and activities listed in the standards for nursing practice of the Nurses Association of New Brunswick.

Baccalaureate preparation in nursing refers to a program of nursing studies pursued through a degree granting facility and which leads to a baccalaureate degree in nursing.

Diploma preparation in nursing refers to a program of nursing studies ranging from two to three years in length and taken through one of three facilities: (a) a hospital based school of nursing, (b) an independent school of nursing, or, (c) a community college school of nursing.

Years experience in nursing are the number of years nurses report themselves to have been employed in nursing.

Workload is the amount of work for which a nurse perceives herself/himself to be responsible during each shift on duty. Workload was measured by the nurses' subjective appraisal of their workloads which they recorded on a five point scale ranging from unusually light to unusually heavy.

Number of patients are the number of different patients for whom nurses have provided nursing care during each shift on duty. The number of patients was measured by the nurses' self reports.

Interpersonal environment is made up of the support, encouragement and positive reinforcement that nurses perceive themselves to be receiving from persons in their work environment. Perceptions of the interpersonal environment were measured through the nurses' responses to questionnaire items in which they were asked to report the percentage of time they experience recognition and/or support from various persons in their work settings.

Study Instrument

A two-part survey instrument was developed by the researcher for use in this study (see Appendix C).

Biographical Data

The first part of the questionnaire was designed to collect biographical information from the respondents. Respondents were asked to provide information related to their education and experience in nursing, their perceptions of their workload, the number of patients in their daily assignments, and their perceptions of the interpersonal environment in which they worked. They were also asked to identify the specific dates and shifts they had worked during the preceeding two weeks.

Nursing Process Data

The nursing process was operationalized in the second part of the questionnaire. The Standards for Nursing Practice accepted by the Nurses Association of New Brunswick include detailed statements identifying expectations for the use of the nursing process in nursing practice. These statements were used as the framework for the nursing process items in the questionnaire.

Each statement in the Standard was operationalized according to the concepts and activities it contained, then rewritten by the researcher into terms thought to be meaningful to nurses in a variety of clinical settings. From the thirty-five statements in the Standard, fifty-three nursing process activities were identified. A table of random numbers was used to arrange these activities in a sequence distinctly different from the original sequence in which they were clustered according to the five subprocesses of the nursing process.

Nurses were asked to respond to each of these activities by indicating the percentage of their patients with whom they had carried out these activities during the past two weeks. Responses were recorded on a five-point scale representing 0-20%, 21-40%, 41-60%, 61-80%, and 81-100% of their patients. An alternate choice of "not applicable" was available to minimize non-responses and to enable respondents to differentiate between situations where the activity would have been inappropriate and hence not carried out, and the choice of a 0-20% response.

Respondents were also asked to use the same recording system to indicate the percentage of those same patients with whom they believed they should have carried out these nursing process activities during the past two weeks. In the beliefs responses, the nurses were instructed to report what they personally thought and believed, not necessarily what a teacher or supervisor may have told them.

Rather than ask the nurses what they usually do in practice or generally believe about nursing practice, they were asked to focus their responses on specific patient contacts which had taken place during the previous two weeks. Obtaining information from the previous two weeks may have reduced the possibility of biases which could be introduced from (a) unusual events on the day the questionnaire was completed and (b) profound memories of events in past work experiences. Tanner (1984b) says both the recency of an experience and the profoundness of an experience can bias study results because there is a tendency to mentally 'oversample' recent experiences and events that have been dramatic to us.

Validity of the Nursing Process Items

Prior to developing the questionnaire items, it was necessary to establish the validity of the framework selected to represent the nursing process. Content validity of the statements contained within the nursing process portion of the Standards for Nursing Practice was determined through an extensive review of nursing literature. The details of each statement in the Standard along with the supporting references for each are presented in Appendix B.

After the questionnaire items had been developed and refined by the researcher, they were submitted to a panel of judges for evaluation of their face and content validity. Fourteen experts selected to represent nursing service, nursing administration, and nursing education and the clinical specialties of medical, surgical, critical care, maternal-child, psychiatric, and emergency nursing reviewed the items.

Each judge was provided with a copy of the Nursing Process Standard and a four point scale with which to rate each questionnaire item according to how highly it reflected the statement from the Standard that it was intended to reflect. A statement from the Standard, the two questionnaire items drafted to reflect it, the rating scale, and judges responses to those items are presented in Table 3.1 to illustrate the rating system.

Responses of 'highly reflects' and 'adequately reflects' were accepted for agreement. Items which received 75% agreement among the judges were retained for the questionnaire. Based on input from the judges, fifty of the original fifty-three items were retained.

Table 3.1

An Example of Experts' Responses when Rating Questionnaire Items for Face Validity

Standards Statement	Questionnaire Item	Number of Experts Responding under each Category			
		Highly Reflects	Adequately Reflects	Poorly Reflects	Does not Reflect
5.4 Communicates with appropriate others regarding her evaluation	50. I reported the clients' progress to their physicians, the nurse-in-charge and/or others concerned in their care	11	2	1	0
	51. I kept family members and/or relevant others up to date on the clients' conditions and progress	12	2	0	0

Similarly, the experts were asked to rate the importance of the activities contained within the questionnaire items to the overall nursing process. Examples of the questionnaire items, the rating scale, and judges responses to these items are presented in Table 3.2 to illustrate this rating system.

Table 3.2

An Example of Experts' Responses when Rating Questionnaire Items for Content Validity

Questionnaire Item	Number of Experts Responding Under Each Category			
	Highly Important	Important	Not Important	Irrelevant
I collected information about my clients that was valuable to other persons involved in their care	8	5	1	0
I compared my findings with normal values, standards, and expected findings	12	2	0	0

Responses of 'highly important' and 'important' were accepted for agreement. All items received over 75% agreement among the judges and were considered relevant for inclusion in the questionnaire.

One major concern throughout instrument development was with the length of the questionnaire and the somewhat cumbersome approaches to collecting data on both respondents' practices and their beliefs in relation to the nursing process activities. In the initial drafts, practices and beliefs were addressed separately. By removing the personal pronouns and rephrasing each statement to include the term 'nurses', information about both practices and beliefs could be obtained from one statement. Hence the length of the questionnaire was reduced considerably.

Environmental Data

In order to corroborate the respondents' perceptions of their workloads with the nursing administration's measure of workload, information from the acuity system used in the hospital was included in this study. The acuity system used in the hospital was developed specifically for use there by Wofac Scientific Management Corporation. This system was developed by making observations on all nursing units on all shifts to determine the amount of nursing time required to carry out all direct and indirect nursing care activities. Activities which required similar lengths of time were grouped into categories. These categories are now used in calculations to determine the number of nursing staff needed for each unit on each shift.

Three times in each 24 hours the categories of care required to meet each patient's nursing care needs are identified. The total number of categories of care identified on each unit are used to calculate the number of nursing care hours required for each unit and each shift (Director of Nursing, Personal Communication, January, 1987). The system is assumed to have high inter-rater reliability and that the categories are valid measures of the patients' requirements for care. However, no data to support this assumption was collected by the researcher.

Information from the acuity system was supplied to the researcher by the nursing administration of the hospital. This information consisted of the total number of nursing hours required on each nursing unit during each 24-hour time period and the total number of nursing hours actually worked on each unit during those 24 hour periods. The difference between the number of nursing hours required and the number of nursing hours worked was calculated for each unit for each 24-hour time period. These differences provided a picture of the staffing situation on the nursing units on a day by day basis. To derive an estimate of how heavy the workloads on the nursing units were for the specific dates each respondent was on duty, the differences between the number of nursing hours required and the number of nursing hours actually worked on those dates were averaged. Nurses who were on duty at times when the number of hours of required nursing care exceeded the number of hours of available nursing care were considered to have heavier workloads than nurses who were on duty at times when the number of hours of required nursing care was less than the number of hours of nursing care available.

Pilot Test

The questionnaire was administered to ten nurses not participating in the main study. The purpose of the pilot test was to further check the questionnaire for difficulties and ambiguities and to determine the amount of time required to complete the questionnaire. Minor revisions related to clarity of wording which were deemed necessary from the pilot responses were completed prior to the main study.

Main Study

Setting

The setting for this study was a 705 bed fully accredited teaching hospital in New Brunswick. This facility which opened in 1982 has a computerized system of patient care records in place. The records system, developed around a nursing process format, provides prompts for nurses to write patient needs/problems, long-term and short-term objectives, nursing interventions, and a date to reassess each goal (Director of Nursing, Personal Communication, March 1986). This system of charting is uniform throughout the hospital and in this study provided control over the variable of paperwork in relation to the nursing process.

The nursing units selected for this study varied in size from 30 to 40 beds. Each unit had a head nurse and an assistant head nurse or a nurse designated to function as an assistant head nurse. One nurse on each unit served as medication nurse on each shift. Apart from administration of medications, nurses were responsible for the care of specific patients on day and evening shifts. A functional approach to assignments was used on night shifts. There were registered nursing assistants (RNAs) employed on each unit and each was assigned to the care of specific patients. Nurses were assigned to carry out procedures which the RNA's were not qualified to perform, hence a nurse may have been responsible for her own specific patient assignment as well as selected nursing procedures for other patients. The number of RNAs varied from one unit to another with the largest number working in geriatric care.

Study Population

All 225 nurses who were working full time in direct patient care on any one of seventeen selected nursing units were included in the study. Because of the unique nature of nurse-patient relationships in the operating and recovery rooms, critical care units, and emergency and outpatient departments, these areas were excluded from the study.

Nurses specifically excluded from the sample were head nurses, assistant head nurses and/or nurses who regularly functioned in the capacity of an assistant head nurse, nurses on orientation, and casual relief staff.

Distribution and Collection of Questionnaires

Questionnaires were placed individually in envelopes along with covering information sheets and self-addressed return envelopes. The information sheets provided a description of the study, assurances of the voluntary nature of participation in the study, steps taken to ensure the anonymity of responses, and information for use in contacting the researcher (see Appendix D). Since participation in the study was voluntary, returning completed questionnaires was interpreted as implied consent and therefore signed consent forms were not deemed necessary.

Questionnaires were addressed to each eligible nurse and distributed through the interdepartmental mail system within the hospital. For reasons of confidentiality, the hospital does not provide outside agencies and individuals with names of staff. The hospital's administrative personnel assumed responsibility for addressing the envelopes and distributing them to the nursing units according to criteria established by the researcher.

Completed questionnaires were returned in the self-addressed envelopes to a specially designated box in the nurses locker room. The locker room was chosen as a collection area because it was away from the nursing units and would therefore minimize any concerns that the nurses may have had that leaving their completed questionnaires on their own nursing units could result in loss of anonymity. The locker room was also an area that all nurses passed through both when coming in to work and when leaving. Therefore, it could not be regarded as 'out of the the way'.

The questionnaires were distributed on September 17, 1986 and the following six weeks were allowed for returning the questionnaires. During the data collection period, the researcher was permitted to visit the participating nursing units to promote the study and to answer questions arising from it. Small informative posters were placed on each unit weekly throughout the data collection period to draw nurses' attention to the study and thereby facilitate the return rate.

Methods of Data Analysis

Data compiled from the questionnaires were analysed by the following statistical methods.

1. Reliability testing using Cronbach's alpha coefficient and factor analysis using principle components analysis for factor extraction were used to determine if the

nursing process items in the questionnaire could legitimately be combined to derive scores to represent nurses' perceptions of their practices and their beliefs for each of the five subprocesses of the nursing process.

2. Paired t-tests for dependent scores were used to examine the difference between the scores which represented nurses' practices and the scores which represented their beliefs for each of the five subprocesses of the nursing process.
3. Pooled t-tests were used to examine the difference between the mean practice score of respondents with university education in nursing and the mean practice score of respondents with diploma education in nursing and to examine the difference between the mean practice score of respondents who perceived their workloads as heavy or unusually heavy and the mean practice score of respondents who perceived their workloads as reasonable.
4. Pearson Product-Moment Correlation coefficients were used to examine the relationship between respondents' practice scores and each of the following variables: their belief scores, their experience in nursing, the number of patients in their daily assignments, the average acuity level of their nursing units for the times they were on duty, and scores which represented their perceptions of the interpersonal environment on their nursing units.

5. Multiple regression analyses were carried out for each of the subprocesses of the nursing process with practice scores regressed on all the other variables included in this study.
6. A probability value of .01 was selected because of concerns with using the same data for repeated tests with a small sample. By setting a stringent probability value the likelihood of a Type I error is reduced. On the other hand one may miss relationships with a stringent probability value.

Summary

In Chapter III the research methods have been described. This description has included the design of the study, the hypotheses to be tested, definitions, the development and distribution of the research instrument, the collection of data from respondents and the methods of data analysis. In Chapter IV the research findings will be presented and interpreted.

CHAPTER IV

FINDINGS

The findings have been divided into three sections: (a) the response rate to questionnaire, (b) reliability and validity testing of the questionnaire,and (c) statistical procedures in relation to the variables.

The Response Rate

There were 56 completed questionnaires returned from the 225 distributed. This number represents an overall response rate of 24.8%. The response rate varied from a low of 8.3% on one nursing unit to a high of 50% on three of the seventeen units included in the study.

In general, the return rates were higher from nursing units where the patient population was relatively homogeneous in terms of medical diagnoses and the patients' hospitalizations were typically more than a month in length.

Reliability and Validity Testing of the Questionnaire

There was an insufficient number of responses to conduct factor analysis on the entire group of nursing process items. Since the nursing process items were designed to represent five distinct subprocesses, the items were separated into these five subgroups for closer examination. Reliability analysis using Cronbach's Alpha statistic and factor analysis using principle components analysis for factor extraction were used to determine the extent to which the items representing each subprocess were internally consistent in measuring the constructs within each subprocess. These analyses were first carried out using the responses in which nurses reported their perceptions of their practices. The analyses were repeated using the responses in which the nurses reported their beliefs about optimal nursing practice. The aim of these analyses was to determine whether or not the scores on the individual items could legitimately be combined to create composite scores to represent nurses' perceptions of their practices and their beliefs for each of the subprocesses. Cronbach (1951) stated that the ideal set of items for use in creating an empirical composite is one which "has a substantial alpha coefficient and [is] not further divisible into a few discrete smaller blocks of items."(p. 332)

Analyses Using Practice Scores

Subprocess I: Collecting Data. Eighteen of the sixty nursing process items were developed to operationalize the construct of collecting data. The reliability coefficient for the practice scores on these items was Alpha 0.8609 indicating a high degree of internal consistency among these items.

Factor analysis of these items resulted in five factors being identified. The first factor accounted for over twice as much variance as the second factor and nearly half of all the variance accounted for within the subprocess (see Table 4.1).

Table 4.1

Variance Accounted for by Factors Extracted from Items Representing the Subprocess 'Collecting Data'

Factor	Eigenvalue	Percent of Variance Accounted for by Factor	Cumulative Percent
1	5.259	29.3	29.3
2	2.166	12.0	41.3
3	1.548	8.6	49.9
4	1.438	8.0	57.9
5	1.024	5.7	63.5

These figures indicate that Factor I is a relatively strong factor operating within these items. Factor loadings of these items on the first factor ranged from 0.1814 to 0.7858 with only two items having factor loadings less than 0.3000 (see Table 4.2).

It is somewhat surprising that item 1(a) concerning the use of interviews to collect information about patients did not load higher on this factor which encompasses so many of the other activities inherent in collecting information from patients. There may have been an underlying problem with the term 'interview' in this item in that respondents may have varied widely in their interpretation of the term. To interview could have been interpreted to mean (a) to conduct a formal interview with the patient, (b) to obtain an oral history from the patient

Table 4.2

Subprocess I - Collecting Data: Factor Loadings on Factor I

Item No	Statement	Loading on Factor I
34	Nurses gather information for use in their nursing care from:	
34(h)	knowledge from other disciplines (eg. sociology, microbiology, physiology);	0.7858
34(b)	physicians;	0.7407
34(g)	their knowledge of nursing practice;	0.7334
34(e)	health care records;	0.6582
34(d)	family and/or relevant others;	0.6457
34(c)	other nurses;	0.6315
34(f)	their recall of experiences in similar situations.	0.5683
45	Nurses use 'head-to-toe' or some other systematic format to collect information about their patients.	0.5607
1(d)	Nurses use consultation to collect information about their patients.	0.5588
33	Nurses determine their patients' expectations concerning their care.	0.5134
1(b)	Nurses use observation to collect information about their patients.	0.4918
1(c)	Nurses use physical assessment to collect information about their patients.	0.4408
34(a)	Nurses gather information for use in their nursing care from the patient.	0.4120
37	Nurses collect information about their patients that can also be used by other persons involved in the care.	0.4056
21	Nurses reassess their patients as frequently as their conditions warrant - at least once per shift.	0.3284
19	Nurses make the information they collect about their patients available to appropriate persons.	0.3187
1(a)	Nurses use interviews to collect information about their patients.	0.2833
9	Nurses respect the confidentiality of the information they collect about their patients.	0.1614

either with or without a structured interview guide or, (c) to carry on informal discussions with the patient.

It is less surprising that item 9 concerning the confidentiality of information had a low factor loading with data collection activities. Confidentiality is generally regarded in nursing literature as a matter of ethics and as an issue which encompasses all aspects of the nursing process and the nurse-patient relationships. Respondents may have had difficulty conceptualizing confidentiality within the narrower context of collecting data about their patients.

Although factor loadings on these two items relating to interviewing and confidentiality were less than 0.3000, the reliability coefficient increased very little when these items were deleted. Deletion of the interview item increased the coefficient from 0.8609 to 0.8682 and deletion of the confidentiality item increased it to 0.8638. Hence, all 18 items were included in the calculations used to derive each respondent's practice score on Subprocess I.

Subprocess II: Analysing Data. Eleven items were developed to operationalize the construct of analysing data. The reliability coefficient for these items was Alpha 0.8000 indicating a high degree of internal consistency among the items representing this subprocess.

Factor analysis of these items resulted in three factors being identified. The first factor accounted for nearly three times as much variance as the second factor and well over half of all the variance accounted for within this subprocess (see Table 4.3).

Factor loadings of the practice items on the first factor ranged from 0.3079 to 0.8054 (see Table 4.4). The responses on all eleven items were included in the calculations used to derive each respondent's practice score on Subprocess II.

Subprocess III: Planning the Intervention. Fifteen items in the questionnaire were developed to operationalize the construct of planning nursing interventions. The reliability coefficient for these items was Alpha 0.8829 indicating a high degree of internal consistency among the items representing this subprocess.

Factor analysis of these items resulted in four factors being identified. The first factor accounted for nearly four times as much variance as the second factor and 60% of all the variance accounted for within this subprocess indicating that it is a strong factor (see Table 4.5). Factor loadings of the items on this first factor ranged from 0.3511 to 0.7267 (see Table 4.6). Given the substantial alpha level and these factor loadings, all fifteen items were included when the practice score on Subprocess III was calculated for each respondent.

Table 4.3

Variance Accounted for by Factors Extracted from Items Representing the Subprocess 'Analysing Data'

Factor	Eigenvalue	Percent of Variance Accounted for by Factor	Cumulative Percent
1	3.807	34.6	34.6
2	1.385	12.6	47.2
3	1.263	11.5	58.7

Table 4.4

Subprocess II - Analysing Data: Factor Loadings on Factor I

Item No	Statement	Loading on Factor I
25	Nurses encourage patients to participate in identifying their own nursing care requirements.	0.8054
50	Nurses verify their interpretation of the information they have about their patients with appropriate resource persons when necessary.	0.8017
31	Nurses collaborate with their patients in deciding which problems should receive priority.	0.7419
12	Nurses share their perceptions and understanding of their patients' health problems with other members of the health care team.	0.6498
13	Nurses use a nursing model or framework to organize the information they have about their patients.	0.5664
48	Nurses identify their patients' actual nursing care problems.	0.5305
11	Nurses interpret the information they collect about their patients in light of the information collected by other health care professionals involved with those patients.	0.5143
6	Nurses identify their patients potential nursing care problems.	0.5122
7	Nurses write their patients' nursing care problems in their care plans or on their charts.	0.4469
39	Nurses verify their interpretation of the information they have about their patients with those patients whenever possible and/or appropriate.	0.3459
16	Nurses compare the information they have about their patients with normal values, standards, or expected findings.	0.3079

Table 4.5

Variance Accounted for by Factors Extracted from Items Representing the Subprocess 'Planning the Intervention'

Factor	Eigenvalue	Percent of Variance Accounted for by Factor	Cumulative Percent
1	6.025	40.2	40.2
2	1.677	11.2	51.4
3	1.227	8.2	59.5
4	1.071	7.1	66.7

Subprocess IV: Implementing the Intervention. Ten items were developed to operationalize the construct of implementing nursing interventions. The reliability coefficient for these items was Alpha 0.7461 indicating a relatively high degree of internal consistency within this subprocess.

Three factors were identified as a result of factor analysis of these items. The first factor accounted for nearly twice as much variance as the second factor and over half of all the variance accounted for within this subprocess. These figures indicate that Factor I is the predominant factor operating among these items (see Table 4.7). Factor loadings of the ten items on this first factor ranged from 0.3674 to 0.7080 (see Table 4.8). All ten items were included when the practice scores on Subprocess IV were calculated.

Table 4.6

Subprocess III - Planning the Intervention: Factor Loadings on Factor I

Item No	Statement	Loading on Factor I
15	Nurses consider alternative nursing actions which may lead to similar outcomes for the patient.	0.7442
26	Nurses collaborate with their patients and/or appropriate others to identify long-term objectives for their patients' care.	0.7267
18	Nurses develop objectives for their care by identifying desired patient outcomes and behaviors (eg. the patient will walk unassisted...).	0.7070
36	Nurses identify a reasonable time period in which each objective for their patients' care should be met.	0.6952
30	Nurses' objectives for their patients care correspond with the goals of other members of the health care team.	0.6858
41	Nurses identify long-term objectives for each patient.	0.6794
44	Nurses identify in-hospital resources that may assist their patients in achieving the objectives for their care.	0.6668
3	Nurses consider how their patients' hospital environment may affect achievement of their nursing care objectives.	0.6462
27	Nurses identify short-term objectives for their patients' care.	0.6458
24	Nurses select the approach to their nursing care which seems most likely to be successful in reaching the desired outcomes.	0.6078
2	Nurses identify the personal strengths and/or the family/community resources of their patients which may assist in achieving their nursing care objectives.	0.5985
40	Nurses write individualized care plans for each patient.	0.5775
5	Nurses collaborate with their patients and/or appropriate others to identify short-term objectives for their patients' care.	0.5618
42	Nurses identify long-term objectives for their patients' care.	0.4979
10	Nurse complete referrals and/or transfer forms to communicate their patients' nursing care requirements to nurses in other agencies when necessary.	0.3511

Table 4.7

Variance Accounted for by Factors Extracted from Items Representing the Subprocess 'Implementing the Intervention'

Factor	Eigenvalue	Percent of Variance Accounted for by Factor	Cumulative Percent
1	3.199	32.0	32.0
2	1.648	16.5	16.5
3	1.075	10.8	59.3

Table 4.8

Subprocess IV - Implementing the Intervention: Factor Loadings on Factor I

Item No	Statement	Loading on Factor I
32	Nurses ensure their patients' environments are optimal to meet desired goals and objectives (eg. close door to minimize distractions when teaching).	0.7080
23	Nurses ensure the nursing care activities they delegate to others are completed properly.	0.6999
4	When leaving the unit for any length of time, nurses report the status of their patients to another nurse who will be on the unit during their absence.	0.6303
17	Nurses encourage their patients to do as much for themselves as possible, even if this causes an increase in frustration (eg. stroke) or discomfort (eg. post-op).	0.5890
29	When in doubt about a physician's order, nurses ask him/her to clarify it.	0.5573
43	Nurses consult nursing journals and/or nursing literature to keep their nursing knowledge up to date.	0.5416
35	Nurses assign nursing care activities to nursing assistants, ward aides, or others according to their level of expertise and role descriptions.	0.5173
14	Nurses use a variety of resources when delivering care to patients (eg. clergy, teaching aids, etc.).	0.4921
20	Nurses consult with an experienced or knowledgeable person when carrying out new or unfamiliar procedures.	0.4633
47	Nurses inform their nurse-in-charge of changes in their patients' conditions.	0.3674

Subprocess V: Evaluating. The remaining six items were developed to operationalize the construct of evaluating nursing care. The reliability coefficient for these items was 0.6958. This value also indicates a relatively high degree of internal consistency within this subprocess.

Two factors were identified as a result of factor analysis of these items. The first factor accounted for over twice as much variance as the second factor and nearly 70% of all the variance accounted for within this subprocess (see Table 4.9).

Table 4.9

Variance Accounted for by Factors Extracted from Items Representing the Subprocess 'Evaluating'

Factor	Eigenvalue	Percent of Variance Accounted for by Factor	Cumulative Percent
1	2.475	41.3	41.3
2	1.077	18.0	59.2

The factor loadings of all but one item on the first factor ranged from 0.5154 to 0.8543. The sixth item, item 38, had a factor loading of 0.1793 on Factor I (see Table 4.10). Upon closer examination, item 38 was observed to contribute little to the variance of this subprocess since 73.2% of the respondents indicated they carried out this activity with 81-100% of their patients while the remaining 26.8% indicated they carried out this activity with 61-80%

of their patients. The narrow range of responses on this item is in sharp contrast with the range of responses on the other items in this subprocess. For the other five items the responses ranged across the six options available to respondents.

Item 38 was included in the calculations to derive practice scores on Subprocess V because (a) its low factor loading can be attributed in part to its small contribution to the variance of the subprocess, (b) the reliability alpha for the overall scale only increases to 0.7237 when item 38 is deleted, and (c) the activity described in item 38 is one that nurses report carrying out with a large proportion of their patients.

Table 4.10

Subprocess V - Evaluating:
Factor Loadings on Factor I

Item No	Statement	Loading on Factor I
22	Nurses observe the outcomes of their nursing actions.	0.8543
28	Nurses observe their patients' behaviors and judge the extent of their progress toward the desired outcomes.	0.7803
46	Nurses compare the results of their nursing actions with the objectives stated in their patients' care plans.	0.6974
8	Nurses update the nursing part of their patients' care plans daily and/or as frequently as the patients' condition warrants.	0.5938
49	Nurses keep family members and/or relevant others up-to-date on the patients' condition and progress.	0.5154
38	Nurses report their patients' progress to other members of the health care team.	0.1793

A summary of the findings from both factor analysis and reliability testing carried out on the nursing process items measured on the practices scale is reported in Table 4.11.

Analyses Using Belief Scores

Analyses similar to those reported for determining the respondents' practice scores on the five subprocesses of the nursing process were conducted to determine whether or not the same items could legitimately be combined to create belief scores for the respondents.

The reliability coefficients for the five subprocesses ranged from 0.8908 to 0.9424 indicating all five subprocesses had a high degree of internal consistency in the belief scale. Factor analysis on each subprocess yielded from one to four factors. Within each subprocess the first factor was by far the predominant one (see Table 4.12). All items were included in their respective subprocesses to calculate beliefs scores for the respondents.

Reliability of the Subprocess Scales

The homogeneity of the items within each subprocess was examined through the use of Cronbach's alpha coefficient (Giovannetti, 1981). The alpha coefficient for each subprocess exceeded 0.6958 indicating each subprocess had a high degree of internal consistency. No other measures were taken to determine the reliability of the nursing process items in the questionnaire.

Table 4.11

Summary of Findings from Factor Analyses and Reliability Testing of the Nursing Process Items Measured on the Practice Scale and Reported by Subprocess

Subprocess	Number of items	Number of factors Identified	% of variance accounted for by all factors	% of variance accounted for by first factor alone	Range of factor loadings on first factor	Reliability coefficient* of items within each subprocess
Subprocess I: collecting data	18	5	63.5	29.2	0.1814 to 0.7858	0.8609
Subprocess II: analysing data	11	3	58.7	34.6	0.3079 to 0.8054	0.8000
Subprocess III: planning the intervention	15	4	66.7	40.2	0.3511 to 0.7267	0.8829
Subprocess IV: implementing the intervention	10	3	59.2	32.0	0.3674 to 0.7080	0.7461
Subprocess V: evaluating	6	2	59.2	41.3	0.1793 to 0.8543	0.6958

*Cronbach's Alpha

Table 4.12

Summary of Findings from Factor Analyses and Reliability Testing of the Nursing Process Items Measured on the Belief Scale and Reported by Subprocess

Subprocess	Number of Items	Number of factors Identified	% of variance accounted for by all factors	% of variance accounted for by first factor alone	Range of Factor loadings on first factor	Reliability coefficient* of items within each subprocess
Subprocess I: collecting data	18	4	73.4	46.9	0.3859 to 0.8545	0.9299
Subprocess II: analysing data	11	2	65.3	54.8	0.5711 to 0.8735	0.9015
Subprocess III: planning the intervention	15	3	73.0	53.1	0.6089 to 0.8722	0.9424
Subprocess IV: implementing the intervention	10	2	67.7	53.8	0.3384 to 0.9009	0.9059
Subprocess V: evaluating	6	1	65.7	65.7	0.6198 to 0.9324	0.8908

*Cronbach's Alpha

Validity of the Subprocess Scales

The content and face validity of the total group of items was established during the construction of the questionnaire through a comprehensive review of literature and judging by experts. The construct validity of the items within each subprocess was examined using reliability testing and factor analysis of both the responses which represented practices and the responses which represented beliefs. The substantial alpha coefficients and the results of the factor analyses provide evidence that the items within each subprocess are likely measuring a common construct. However, it is not possible to be certain that the constructs are exactly as anticipated from the nursing model since no other measures were taken to establish the concurrent validity of the items within each subprocess.

Statistical Procedures in Relation to the Variables

For purposes of analysis, responses on both the practice scale and the belief scale were assigned values of 1 through 6 where 1 represented the response '0-20%', 2 represented '21-40%', 3 represented '41-60%', 4 represented '61-80%', 5 represented '81-100%', and 6 represented 'not applicable'. To derive practice and belief scores for each respondent for each subprocess of the nursing process, the questionnaire items were arranged according to the five subprocesses. The values which represented each individuals' response to each item were averaged for each group of items. Items marked not applicable and those left with no response were excluded from these calculations. Hence, practice and belief scores could range between 1 and 5.

Nurses' Perceptions of their Practices

Nurses' practice scores on the five subprocesses ranged from 1.20 to 5.00. The range of practice scores, the mean practice score, and the standard deviation of the practice score for each subprocess are presented in Table 4.13. The findings indicate that the majority of the respondents selected either 41 to 60% or 61 to 80% to represent the percentage of their patients with whom they had carried out the nursing process activities during the preceeding two weeks.

Table 4.13

Summary of Practice Scores for each Subprocess

Subprocess	Number of Responses	Range of Scores	Mean Practice Score	Standard of Deviation
Subprocess I: Collecting Data	56	2.67-5.00	4.02	0.58
Subprocess II: Analysing Data	56	2.45-4.91	3.90	0.64
Subprocess III: Planning the Intervention	56	1.20-4.93	3.78	0.78
Subprocess IV: Implementing the Intervention	56	2.70-5.00	4.08	0.55
Subprocess V: Evaluating	56	2.00-5.00	3.84	0.63

Nurses' Beliefs about Optimal Nursing Practice

Nurses' belief scores on the five subprocesses ranged from 1.17 to 5.00. The range of belief scores, the mean belief score, and the standard deviation of the belief score for each subprocess are presented in Table 4.14. The findings indicate that the majority of the respondents selected either 61 to 80% or 81 to 100% to represent the percentage of their patients for whom they believed the nursing process activities should have been carried out during the preceeding two weeks.

Table 4.14

Summary of Belief Scores for each Subprocess

Subprocess	Number of Responses	Range of Scores	Mean Belief Score	Standard Deviation
Subprocess I: Collecting Data	55	1.44-5.00	4.52	0.64
Subprocess II: Analysing Data	55	1.18-5.00	4.55	0.67
Subprocess III: Planning the Intervention	55	1.40-5.00	4.49	0.69
Subprocess IV: Implementing the Intervention	55	1.60-5.00	4.67	0.57
Subprocess V: Evaluating	55	1.17-5.00	4.69	0.68

The Relationship between Practices and Beliefs

Paired t-tests for dependent scores were carried out to examine the difference between the respondent's practice scores and belief scores on each subprocess of the nursing process. For each subprocess, practice scores were significantly lower than belief scores. The findings from these t-tests are summarized in Table 4.15.

Pearson Product Moment Correlation coefficients were carried out to further examine the relationship between practice scores and belief scores for each of the subprocesses. There was a positive correlation between practices and beliefs in each of the subprocesses though initially this correlation was statistically significant (P=.01) for only two of the subprocesses: collecting data and planning the intervention. The results of the correlations are summarized in Table 4.16(a).

For each of the subprocesses either one or two scores on the belief scale were well below the remaining scores. Pearson Product-Moment Correlations were repeated with these outlying values removed. The resulting correlations were all statistically significant and are summarized in Table 4.16(b). The findings indicate that as belief scores increase there is a corresponding increase in practice scores.

Table 4.13

Paired T-test of Difference between Practice Scores and Belief Scores for each Subprocess

Subprocess	Variable	Number of Cases	Mean	Standard Deviation	Difference	T Value	Degrees of Freedom	P
Subprocess I: Collecting Data	Practices	55	4.02	0.58	-0.50	-6.22	54	<.001
	Beliefs		4.52	0.64				
Subprocess II: Analysing Data	Practices	55	3.90	0.64	-0.65	-5.96	54	<.001
	Beliefs		4.55	0.67				
Subprocess III: Planning the Intervention	Practices	55	3.78	0.78	-0.70	-7.00	54	<.001
	Beliefs		4.49	0.69				
Subprocess IV: Implementing the Intervention	Practices	55	4.08	0.55	-0.58	-6.15	54	<.001
	Beliefs		4.67	0.57				
Subprocess V: Evaluating	Practices	55	3.84	0.63	-0.84	-7.39	54	<.001
	Beliefs		4.69	0.68				

Table 16(a)

Pearson Product-Moment Correlations between Practice Scores and Belief Scores for each Subprocess of the Nursing Process

Subprocess	Number of Cases	Correlation	r^2	P
Subprocess I: collecting data	55	.52	.27	<.01
Subprocess II: analysing data	55	.24	.05	.03
Subprocess III: planning the intervention	55	.46	.21	<.01
Subprocess IV: implementing the intervention	55	.21	.04	.06
Subprocess V: evaluating	55	.17	.02	.10

Table 16(b)

Pearson Product-Moment Correlations between Practice Scores and Belief Scores for each Subprocess of the Nursing Process Corrected with Removal of Outliers

Subprocess	Number of Cases	Correlation	r^2	P
Subprocess I: collecting data	54	.66	.43	<.01
Subprocess II: analysing data	53	.44	.19	<.01
Subprocess III: planning the intervention	53	.51	.26	<.01
Subprocess IV: implementing the intervention	53	.40	.16	<.01
Subprocess V: evaluating	53	.37	.13	<.01

The Influence of Level of Education in Nursing

A large proportion of the respondents were graduates of an RN diploma program and made up 78.6% of the total number. There were 16.0% who held a basic baccalaureate degree in nursing while 1.8% held a post-basic baccalaureate degree in nursing. A further 3.6% reported having taken nursing courses for credit toward a post-basic degree in nursing (see Table 4.17). For purposes of analysis respondents with either a basic baccalaureate degree in nursing, a post-basic baccalaureate degree in nursing or nursing courses taken for credit toward a degree in nursing were combined to form the group with university education in nursing beyond the diploma level.

Table 4.17

Distribution of Respondents by Level of Education in Nursing

Level of Education in Nursing	Frequency of Response	Percent of Responses	Cumulative Percent
RN diploma	44	78.6	78.6
Basic Baccalaureate Degree in Nursing	9	16.0	94.6
Post-Basic Baccalaureate Degree in Nursing	1	1.8	96.4
Nursing Courses for credit toward a post-basic degree in nursing	2	3.6	100.0
Total	56	100.0	

T-tests were carried out to compare the mean practice scores of those having diploma education in nursing with the mean practice scores of those having university education in nursing for each subprocess of the nursing process. No statistically significant differences were identified. Similarly, t-tests carried out on the means of the belief scores of the two groups for each of the subprocesses resulted in no statistically significant findings.

The respondents were given an opportunity to identify any other education they may have had. Fourteen respondents indicated they held some other type of education in addition to their basic education in nursing. This additional education varied from non-nursing university degrees or courses (for example, education, fine arts, biblical studies, general sciences) to certification in mental health nursing, nursing unit administration, or cardio-pulmonary resuscitation. Because of the wide variation in types of additional education and the small numbers present to form any one group, this information was not incorporated into any subsequent analyses.

The Influence of Experience in Nursing

Year of Graduation from Basic Nursing Education. The range of responses for the year of graduation from basic nursing education spread from 1947 to 1986. The largest proportion of respondents (58.9% of the total) had graduated in 1980 or more recently. There were 19.6% who had graduated between 1970 and 1979 while 17.9% had graduated between 1960 and 1969. An additional 3.6% had graduated prior to 1960 (see Table 4.18).

A compilation of the graduation dates of the nurses employed in the hospital was not available to the researcher. However, the Director of Nursing reported that in her opinion, these percentages accurately reflect the distribution of nurses employed full-time in the hospital for this particular variable (Director of Nursing, Personal Communication, January, 1987).

Length of Experience in Nursing. The range of length of experience in nursing spread from 2 months to 26 years. The mean length of experience in nursing for the respondents was 7.05 years with a standard deviation of 6.79. Within this distribution, 50.0% had less than five years experience, 21.4% had five to nine years experience, 12.5% had ten to fourteen years experience, 7.1% had fifteen to nineteen years experience and an additional 9.0% had worked twenty or more years in nursing (see Table 4.19).

A large proportion of the respondents (78.5%) had worked the number of years that corresponded with the number of years that had passed since their year of graduation. This finding indicates these nurse had been

Table 4.18

Distribution of Respondents by Year of Graduation from Basic Nursing Education Programs

Year of Graduation Grouped by Decade	Frequency of Response	Percent of Responses	Cumulative Percent
1940 - 1949	1	1.8	1.8
1950 - 1959	1	1.8	3.6
1960 - 1969	10	17.9	21.5
1970 - 1979	11	19.6	41.1
1980 - 1986	33	58.9	100.0
Total	56	100.0	

Table 4.19

Distribution of Respondents by Length of Experience in Nursing

Length of Experience	Frequency of Response	Percent of Responses	Cumulative Percent
20 or more years	5	9.0	9.0
15 - 19 years	4	7.1	16.1
10 - 14 years	7	12.5	28.6
5 - 9 years	12	21.4	50.0
less than 5 years	28	50.0	100.0
Total	56	100.0	

Mean length of Experience = 7.05
Standard Deviation = 6.79

employed in nursing continuously since completing their basic nursing programs. For the remaining 21.5% (n=12), the difference between the number of years passed since graduation and the number of years employed in nursing ranged from 1 to 23 years. Overall, the respondents were experienced nurses for whom the mean length of experience in nursing was 13.6 years and all but two of this group had at least 10 years experience.

There was a negative correlation between the number of years the respondents had been employed in nursing and their practice scores for each of the subprocesses of the nursing process. However, these correlations were not statistically significant. There was also a negative correlation between the number of years the respondents had been employed in nursing and their belief scores for each of the subprocesses of the nursing process. The correlations with belief scores were statistically significant for two of the subprocesses (P=.01) and were approaching significance for the remaining three subprocesses. These values are reported in Table 4.20(a).

For each of the subprocesses, either one or two scores on the belief scale were well below the majority of the scores. Pearson Product-Moment Correlations were repeated with these outlying values removed and none of the resulting correlations were statistically significant (see Table 4.20(b)).

Table 4.20(a)

Pearson Product-Moment Correlations between Belief Scores and Years of Experience in Nursing for each Subprocess of the Nursing Process

Subprocess	Number of Cases	Correlation	r^2	P
Subprocess I: collecting data	55	-.29	.08	.02
Subprocess II: analysing data	55	-.32	.10	<.01
Subprocess III: planning the intervention	55	-.26	.06	.02
Subprocess IV: implementing the intervention	55	-.32	.10	<.01
Subprocess V: evaluating	55	-.29	.08	.02

Table 4.20(b)

Pearson Product-Moment Correlations between Belief Scores and Years of Experience in Nursing for each Subprocess of the Nursing Process Corrected with Removal of Outliers

Subprocess	Number of Cases	Correlation	r^2	P
Subprocess I: collecting data	54	-.06	.00	.31
Subprocess II: analysing data	54	-.09	.01	.24
Subprocess III: planning the intervention	53	-.15	.02	.13
Subprocess IV: implementing the intervention	54	-.07	.01	.29
Subprocess V: evaluating	54	-.03	.00	.39

The Influence of Workload

The largest proportion of the respondents, 59%, reported that their workloads had been heavy during the past two weeks while 19.6% reported that their workloads had been unusually heavy, and 21.4% reported that their workloads had been reasonable (see Table 4.21) None of the respondents perceived their workloads as either light or unusually light.

Table 4.21

Distribution of Respondents by Perception of Workload

Perception of Workload	Frequency of Response	Percent of Responses	Cumulative Percent
unusually heavy	11	19.6	19.6
heavy	33	59.0	78.6
reasonable	12	21.4	100.0
Total	56	100.0	

For purposes of analyses, those respondents who reported that their workloads had been heavy or unusually heavy were combined to form the group with heavy workloads. The remaining respondents formed the group with reasonable workloads. For each subprocess of the nursing process a t-test was carried out to compare the mean practice scores of those who reported having heavy workloads with the mean practice scores of those who reported having reasonable workloads. Similarly, t-tests were used to compare the mean belief scores of those who reported having heavy workloads with the mean belief scores of those who reported having reasonable workloads. There were no significant differences observed between the means of the heavy and reasonable groups for either their practice scores or their belief scores.

The Influence of Acuity Levels

Forty respondents or 71.4% of the total group identified the specific dates and shifts they had worked during the preceding two weeks. A number of respondents may have been reluctant to provide these details because of concerns that their questionnaires could be matched with unit staffing schedules and thus their anonymity could be jeopardized. Others may not have been able to recall the particulars of their work schedule over the past two weeks or may have found the questionnaire format for collecting this information confusing.

Knowing the dates these forty respondents worked and the daily acuity levels for the various units enabled the researcher to estimate the mean acuity levels on the units for the time period each respondent in this group was working. These acuity levels spread from a deficit of 48.6 hours of available nursing time in a 24 hour period to an excess of 26 hours of available nursing time in a 24 hour period. Overall, the mean acuity level throughout the participating units for the time period when respondents were completing their questionnaires indicated there was a shortage of 4.62 hours of available nursing time in each 24 hour period. This mean value points toward an overall tendency to be short-staffed within the hospital although it is a small tendency since this value represents a shortage of less than one nurse per unit per 24 hour period. However, the standard deviation about this mean was 13.49 indicating considerable variation in acuity across the nursing units.

The acuity data is more insightful when examined in conjunction with the respondents perceptions of their workloads. Respondents who reported that their workloads were unusually heavy or heavy were working at times when the averaged acuity levels for their units indicated a shortage of 5.60 and 5.84 hours of nursing time in 24 hours respectively. These acuity-levels are in contrast with the mean acuity levels on the units where the nurses who reported having reasonable workloads were working. This latter group experienced staffing patterns in which there was a mean excess of 1.90 hours of available nursing time in 24 hours (see Table 4.22). These acuity values provide objective data which supports the respondents subjective evaluation of their workloads and indicates that respondents were able to differentiate their degree of workload in a manner consistent with the hospital's interpretation of workload.

There was no significant correlation between the practice scores for any of the subprocesses and the average acuity levels when the respondents were working. Similarly, there was no significant correlation between the belief scores for any of the subprocesses and the average acuity levels when the respondents were working.

Table 4.22

Respondents Perceptions of their Workload Compared with the Calculated Mean Acuity Levels for their Respective Nursing Units

Perception of Workload by Respondents	Number of Nurses Responding	Percent of Responses	Mean Acuity[(a)] Reported by Hospital	Standard Deviation
Unusually heavy	10	17.8	-5.60	6.05
Heavy	24	42.8	-5.84	15.91
Reasonable	6	10.8	1.90	11.36
Missing Values	16	28.6		
Total Cases	56	100.0		

(a) Mean acuity values represent a calculation of available nursing hours in relation to the required number of nursing hours as determined by patients' identified needs. A negative value indicates patients required more nursing hours than were available.

The Influence of Number of Patients in Daily Assignments

Forty-two respondents, or 75% of the total group, provided details of the specific numbers of patients in their daily assignments. The missing data for this variable may have been caused by the respondents inability to recall the specific numbers in their assignments over the past two weeks, or by confusion with the data collection instrument which failed to provide instructions for dealing with shifts on which the respondents may have been assigned to specific duties such as charge nurse or medication nurse. A number of respondents wrote these activities in where applicable, but others gave no information for this variable.

The mean number of patients in individual respondents daily assignments ranged from 1.7 to 38. The overall mean number of patients in daily assignments was 8.8 with a standard deviation of 6.6. This overall mean and standard deviation was influenced by the variation generated when respondents who worked night shifts throughout the data collection period and those who worked a mixture of day and night shifts were combined with those who worked only day and/or evening shifts. The number of patients reported as being cared for by each nurse at night was much greater than the number of patients reported as being cared for on either the day or the evening shifts. Because of the differences between the night shift and the other two shifts, the mean and standard deviation were recalculated omitting respondents who had worked night shifts. The resultant mean was 6.7 with a standard deviation of 2.3 (see Table 4.23).

Table 4.23

Mean Number of Patients in Daily Assignments

	Number of Nurses Responding	Mean Number of Patients in Assignments	Standard Deviation
Calculated for respondents across all shifts.	42	8.8	6.6
Calculated for respondents who worked days and/or evenings only.	26	6.7	2.4

There was no significant correlation between practice scores for any of the subprocesses and the number of patients in respondents daily assignments using either the calculations with night shifts included or those without night shifts. Similarly, there was no significant correlation between belief scores for any of the subprocesses and the number of patients in respondents daily assignments using either set of calculations.

The Influence of Interpersonal Environment

Eight statements in the questionnaire were designed to collect information on aspects of the respondents' perceptions of the interpersonal environment in which they worked. Respondents were asked to indicate the percentage of time each statement was true for them. Their responses were assigned values of 1 through 5 where 1 represented the choice of '0-20%', 2 represented '21-40%', 3 represented '41-60%', 4 represented '61-80%', and 5 represented '81-100%'. For purposes of analysis each respondent's assigned values for the statements were averaged to derive a single score to represent their perceptions of the interpersonal environment.

The statements related to interpersonal environment were examined to determine the extent to which they measured one or more constructs related to interpersonal relationships in the workplace and to determine whether or not they could legitimately be combined to create a measure of the respondents' perceptions of the environment in which they worked. For the eight items representing the interpersonal environment, the reliability coefficient was Alpha 0.7245. The responses to these eight items were subjected to factor analysis. Three factors were identified using the principle components analysis technique for factor extraction. These three factors accounted for 71.7% of the variance among the items. The first factor alone accounted for 37.1% of the variance. Factor loadings of the eight items on the first factor ranged from 0.341 to 0.819 (see Table 4.24).

The findings from this factor analysis when considered with the substantial reliability coefficient provide evidence that the eight items were relatively homogeneous in measuring elements of the interpersonal environment in the workplace. Therefore all eight items were used to calculate the interpersonal environment score for each respondent. The range of scores on this variable spread from 2.38 to 5.00.

Table 4.24

Interpersonal Environment: Factor Loadings on Factor I

Statement	Loading on Factor I
I have opportunities to exchange my ideas about nursing care with my supervisors and colleagues.	0.8193
I feel good about coming to work here.	0.7894
I feel my supervisor respects my opinions about nursing care issues.	0.7243
I have a good working relationship with medical staff.	0.5608
I enjoy working with patients/clients.	0.5580
I receive support and encouragement from my nursing colleagues.	0.5029
I receive recognition from my supervisors for my work.	0.3881
I have good working relationships with other health-care workers (eg. therapist, dietary)	0.3405

Pearson Product-Moment Correlations were carried out to examine the relationship between interpersonal environment scores and both practice scores and belief scores for each of the subprocesses of the nursing process. There were no statistically significant correlations (p=.01) between the interpersonal environment scores and the practice scores for each subprocess of the nursing process though the correlations were approaching significance on the first three subprocesses (see Table 4.25). There were no statistically significant correlations between interpersonal environment scores and belief scores.

Table 4.25

Pearson Product-Moment Correlations Between Interpersonal Environment Scores and Practice Scores for each Subprocess of the Nursing Process

Subprocess	Correlation	r^2	p
Subprocess I: collecting data	.2903	.08	.015
Subprocess II: analyzing data	.2849	.08	.016
Subprocess III: planning the intervention	.2988	.08	.013
Subprocess IV: implementing the intervention	.2066	.04	.063
Subprocess V: evaluating	.1050	.01	.220

Multivariate Analyses

Reid (1983) cautions against the use of multiple t-tests and multiple correlation coefficients within one research study for two reasons: (1) the tests are not independent because ~~the same~~ subjects are used for all the tests, and (2) the true alpha error rate and hence the probability of a Type I error increases with each test. She suggests that multiple regression may be used as an alternative strategy in research to avoid problems with the alpha rate.

Multiple regression procedures permit analysis of partial relationships between two variables while controlling for other variables. Agresti and Finlay (1986) state that "Partial associations in which certain variables are controlled can be quite different from the bivariate associations that are obtained when the other variables are ignored" (p. 316).

Multiple regression analyses were carried out using data from the 34 respondents for whom there were complete data sets. For each subprocess of the nursing process, both practice scores and belief scores were regressed on the respondents education and length of experience in nursing, their perceptions of their workload, the average number of patients in their daily assignments, the average acuity levels on the nursing units when they were working, and their perceptions of the interpersonal environment in which they worked. None of the variables demonstrated a significant relationship with practice scores for Subprocess I: Collecting Data, Subprocess II: Analysing Data, Subprocess IV: Implementing the Intervention, or Subprocess V: Evaluating. The variable perceptions of the interpersonal environment demonstrated a significant relationship with Subprocess III: Planning the Intervention (b=.40115, Se b=.19060, P=.0448). None of the variables demonstrated a significant relationship with belief scores.

For each subprocess of the nursing process practice scores were regressed first on belief scores alone then all seven variables were entered into the equation. These variables included beliefs, education and length of experience in nursing, perceptions of workload, the average number of patients in daily assignments, the average acuity levels on the nursing units when on duty, and perceptions of the interpersonal environment in which they worked. For each subprocess the percentage of explained variance in the practice scores increased when all the variables were included in the analysis but only belief scores demonstrated a significant relationship with practice scores (see Table 4.26).

Table 4.26

Summary of Multiple Regression Analyses for each Subprocess of the Nursing Process

Subprocess	R^2 for Practices Regressed on Beliefs	R^2 for Practices Regressed on all Variables
Subprocess I: collecting data	.44705	.51108
Subprocess II: analysing data	.22513	.36633
Subprocess III: planning the intervention	.36449	.48337
Subprocess IV: implementing the intervention	.20165	.24387
Subprocess V: evaluating	.22942	.28457

Summary

In summary, reliability testing and factor analysis provided evidence that the nursing process items could legitimately be combined to create scores for each of the five subprocesses of the nursing process. The scores which represented the respondents perceptions of their nursing practice for each of the five subprocesses were the dependent variables under investigation in this study. The scores which represented the respondents beliefs about optimal nursing practice for each of the five subprocesses as well as selected characteristics of the respondents and their work situations were the independent variables in this study. Respondents' practice scores were found to be not only significantly correlated with their belief scores but also significantly lower than their belief scores. There were no significant relationships observed between either the respondents' practices or their beliefs and any of the following variables: (a) their level of education in nursing, (b) their length of experience in nursing, (c) their perceptions of their workloads, (d) the average acuity levels on their nursing units when they were working, (e) the average number of patients in their daily assignments, and, (f) their perceptions of the interpersonal environments in which they worked.

CHAPTER V

CONCLUSIONS AND RECOMMENDATIONS

The focus of this study was to explore the practices and beliefs of nurses working in clinical settings and to examine the influence of selected variables on their practices and beliefs. A research instrument was developed around the model of the nursing process that is described in standards for nursing practice which have been adopted for use by the Nurses Association of New Brunswick. The research instrument was distributed to nurses currently employed full-time in a hospital in that province. Because the response rate was low, the findings must be interpreted cautiously and the conclusions must be regarded in light of this limitation.

Conclusions

The overall mean practice score indicated that the majority of respondents reported they were able to carry out the nursing process activities with 60 to 80% of their patients. The overall mean belief score indicated that the majority of the respondents believed that they ought to have carried out these activities with 81 to 100% of their patients. While practice scores and belief scores were significantly correlated they were also significantly different and suggested that nurses may not be able to carry out nursing process activities to the extent they believe they should.

Hypothesis I

Hypothesis I stated there will be a significant positive correlation between the percentage of patients with whom nurses perceive themselves to be carrying out activities representative of the subprocesses of the nursing process in their clinical practices and the percentage of those same patients with whom nurses believe they ought to be carrying out these activities in their clinical practices. There was support for Hypothesis I.

There was a significant positive correlation between practice scores and belief scores for two of the five subprocesses of the nursing process. When the correlations were recalculated with two outlying values removed, there was a significant positive correlation between practice scores and belief scores for all five of the subprocesses of the nursing process.

Hypothesis II

Hypothesis II stated that nurses with baccalaureate preparation in nursing and/or nurses who have taken university courses in nursing for credit toward a baccalaureate degree in nursing will report carrying out the activities representative of the subprocesses of the nursing process with a significantly greater percentage of their patients than nurses with diploma preparation in nursing. There was no support for Hypothesis II.

There was no significant difference between the practice scores of nurses with university education in nursing and the practice scores of nurses with diploma education in nursing on any of the subprocesses of the nursing process.

Hypothesis III

Hypothesis III stated that there will be a significant negative correlation between the number of years experience in nursing and the percentage of patients with whom nurses perceive themselves to be carrying out activities representative of the subprocesses of the nursing process. There was no support for Hypothesis III.

There was no significant negative correlation between practice scores and the number of years the respondents had been employed in nursing for any of the subprocesses of the nursing process.

Hypothesis IV

Hypothesis IV stated that nurses who report having heavy or unusually heavy workloads will report carrying out the activities representative of the subprocesses of the nursing process with a significantly smaller percentage of their patients than nurses who report having reasonable, light, or unusually light workloads. There was no support for Hypothesis IV.

There was no significant difference between the practice scores of nurses who reported having heavy or unusually heavy workloads and the practice scores of nurses who reported having reasonable workloads. None of the respondents perceived their workloads as light or unusually light.

Hypothesis V

Hypothesis V stated that there will be a significant negative correlation between the number of patients which nurses report caring for in their daily assignments and the percentage of patients with whom nurses perceive themselves to be carrying out activities representative of the subprocess of the nursing process. There was no support for Hypothesis V.

There was no significant correlation between practice scores and the average number of patients in respondents daily assignments for any of the subprocesses of the nursing process. This finding remained consistent for both the average patient numbers calculated for the respondents who worked all shifts and the average patient numbers calculated for respondents who worked only day and/or evening shifts.

Hypothesis VI

Hypothesis VI stated that there will be a significant positive correlation between nurses perceptions of the interpersonal environment in which they work and the percentage of patients with whom nurses perceive themselves to be carrying out activities representative of the subprocess of the nursing process.

There was no significant correlation between practice scores and the respondents interpersonal environment scores. The correlations between the scores for collecting data and the interpersonal environment scores, the scores for analysing data and the interpersonal environment scores, and the scores for planning the interventions and the interpersonal environment scores were all approaching significant levels. However, this finding was insufficient to support Hypothesis VI.

Discussion of the Findings

The Response Rate

The overall response rate of 24.8% was disappointing. However, it is insightful to consider this response rate in light of other surveys conducted recently among New Brunswick nurses.

Most recently, a survey to elicit nurses opinions concerning nursing practice in the year 2000 was conducted through the Nurses Association publication Info. Only 135 completed questionnaires were returned from the entire Info circulation of over 7000 ("Synopsis of entry to practice...", 1986). This low response may have been due, in part, to the fact that the questionnaire had been incorporated into a larger publication for distribution instead of being sent out to the members by itself.

A study was conducted by the Nurses Association of New Brunswick in 1984 to learn more about members' knowledge and opinions of the role of the Association and the services it provides (New Brunswick Association of Registered Nurses, 1984). A random sample of 1723 members was surveyed through the mail. The response rate in that study was 25%.

Croll (1983) also used a mail survey to investigate the relationship between the attitudes of nurses in New Brunswick toward professionalization and their participation in continuing education activities. The response rate in her study was 27%. The response rate obtained in this current investigation was therefore consistent with the response rates obtained in other survey studies involving New Brunswick nurses.

Further in relation to the response rate, it was interesting to note that Chance and Hanvey (1986) reported an overall response rate of 80% across Canada in their national survey concerning neonatal resuscitation. They reported a response rate greater than 70% from each province/territory except New Brunswick where the response rate was 38%. It is possible that there are unknown elements or underlying factors which are influencing New Brunswick's nurses in their willingness to participate in survey research.

Nursing research in general has low visibility in many

New Brunswick health care agencies. During 1986 only one nurse was reported to be working as a researcher and that was in a part-time position (Nurses Association of New Brunswick, 1986). Additionally, there are no graduate nursing programs based in the province.

During the data collection period, one nurse in the hospital commented to the researcher that she was unable to complete the questionnaire because she felt many of the nursing process activities listed in the questionnaire were not relevant to her. She regarded these activities as the responsibility of head nurses or other nursing administrators in the hospital structure. Her views may be representative of those held by a larger number of non-respondents. If nurses do not regard nursing process activities as part of their nursing role, they may feel unwilling or unable to participate in a study which focuses on the nursing process. Perhaps the nursing process is not as well understood among staff nurses as academicians and administators believe. This nurse's comments may also indicate that the items in the questionnaire failed to operationalize the nursing process activities in terms which were meaningful to staff nurses.

Beliefs About Optimal Nursing Practice

Nurses' practice scores differed significantly from their belief scores. There was a positive correlation between practice scores and belief scores but belief scores had a higher mean than practice scores for all subprocesses. This indicates a discrepancy between ideal levels of nursing practice and nurses' perceptions of reality in the work environment. Similar observations have been made by numerous authors (Clarke, 1986; Corwin, 1961; Kramer, 1974; Miller, 1985(b); Smoyak, 1969). There are also authors who describe the strategies nurses use to reconcile these discrepancies.

Shrock (1981) suggests that when nurses find their formerly valued concepts and ideals are no longer satisfactory, they restructure and recreate those concepts and ideals to fit the new circumstances. This restructuring and recreating serves to lessen the stress which the individual might otherwise experience when faced with major discrepancies between ideals, values, and beliefs and the realities of the present situation.

Kramer (1974) observed that nurses employ various strategies when faced with major discrepancies between their personal value systems and the values upheld in the work world. These strategies include (1) integrating past values with the realities and demands of the present situation, (2) rejecting previous values and taking up the values of the work environment, or (3) maintaining previous values but leaving nursing practice.

The majority of respondents indicated they believed the activities representative of the nursing process were necessary for 81 - 100% of their patients. Despite the fact nurses reported they were not able to carry out the activities as frequently as they believed they should, it appears that the values of these respondents have not been seriously eroded by circumstances in the workplace.

Education in Nursing

The return rate for nurses with university education in nursing was 34%. The return rate for the nurses who held diploma education in nursing was 23%. Therefore, respondents with university education in nursing were slightly over-represented in the sample as nurses with diploma education in nursing represented the larger proportion in the hospital population.

No significant differences were found between the two groups on either practice scores or belief scores. Previous research into the differences between nurses with university education in nursing and those with diploma education in nursing has led to inconclusive results. For example, when practice was the focus of study Aspinal (1976) and Davis (1974) found that nurses with baccalaureate preparation in nursing performed specific tasks at a significantly higher level than nurses with diploma preparation, while McMillan (1985) found this not to be the case.

In the present study, the lack of difference between the two groups may be due to at least two reasons. First, since the nursing process is taught at both levels of nursing education, there may indeed not be a difference between the two groups in the way they practice the nursing process or in what they believe about it. Further to this point, McMillan (1985) speculates that since the faculty members of diploma programs are themselves products of baccalaureate programs, they may be introducing more aspects of the 'baccalaureate mold' into the philosophies and curricula of the diploma programs than is realized. This could account at least in part, for the similar mean scores between the two groups.

The second possible explanation for this finding is that the instrument used to measure practices and beliefs in relation to the nursing process may not have been sensitive enough to detect differences that may exist between the two groups. Perhaps there are more subtle differences between the two groups in the ways in which they activate the nursing process and follow through its steps.

Experience in Nursing

There were no significant correlations between practice scores and length of experience in nursing. Benner (1984) believes that process models and elemental and procedural descriptions of nursing performance cannot adequately describe the advanced levels of clinical performance which are observable in actual practice. If this is true, it is quite possible that the fractionated description of the nursing process used to measure nurses perceptions of their practices and their beliefs in this study was unable to detect differences which may have been present between experienced practitioners and those with lesser amounts of experience.

It is also important to bear in mind that experience does not necessarily lead to expertise. While it is true that experience is an integral part of expertise, not all experienced nurses can be regarded as experts (Benner, 1984). In fact, Davis (1974) observed that there was a significant negative relationship between years of experience in nursing and nurses performance on a number of variables. She attributed her findings to a lack of continuing education activities in nursing.

Though not significant, the correlations obtained in the current study display a negative trend between practice scores and length of experience. The influence of length of experience is a variable which warrants further investigation for two reasons: (a) to develop more valid and reliable measures of the differences between experienced and inexperienced nurses in their nursing practices, and (b) to obtain further information about the influences of experience and the passage of time on individual's nursing practices.

Workload, Acuity Levels, and Number of Patients in Daily Assignments

Perceptions of workload, the acuity levels on the nursing units and the number of patients in daily assignments showed no significant relationships with either practice scores or belief scores. One can speculate that these findings occurred because the activities included in the practice and belief scales are so fundamental to nursing practice that they will be carried out with patients regardless of how busy nurses are at the time.

The majority of respondents reported that their workloads were heavy or unusually heavy. Their perceptions of their workload were corroborated with the acuity data from the nursing units. These nurses were busy yet took the time to respond to the questionnaire. It is possible to speculate that the respondents may be representing a subgroup within the hospital who share a special commitment to their profession. If they were willing to volunteer to participate in this type of study, they may also be individuals who will make every effort to carry out as many of the nursing process activities as possible in their clinical practices.

Interpersonal Environment on the Nursing Units

Ashworth (1980), Bowman, Thompson and Sutton (1983, 1986), Hegyvary and Haussman (1976), Milne (1985, 1986), and Shea (1986) all believe that the interpersonal and physical environment of the nursing unit exerts an influence over the way in which nurses practice their profession. The findings from this study support, in part, the beliefs of these various authors. The relationship between respondents practice scores and their perceptions of the interpersonal environment was a positive and linear one which was approaching significance for three of the subprocesses: collecting data, analysing data, and planning the interventions. Practice scores for these three subprocesses increased as respondents perceptions of the interpersonal environment became more favorable.

The items used to measure the interpersonal environment in this study may not have been appropriate or sensitive enough to capture the dimensions of the interpersonal environment which can influence the subprocesses of implementing and evaluating nursing interventions. Additionally, the items used to measure nurses practices and beliefs in relation to the subprocesses of implementing and evaluating nursing interventions may have varied in some way from the items used to measure the other three subprocesses. Hence they may have been unable to measure any significant relationships with the interpersonal environment scores. The low number of respondents in the sample may also be affecting these findings.

Since numerous authors attest to the significance of various dimensions of the environment on nurses practices and the data in this study displayed a tendency to support their views, the influence of the environment in the work setting is a variable which warrants investigation in future studies.

Implications for Nursing Practice

In this study an instrument was developed to measure and describe nurses' practices and beliefs in relation to the nursing process and to determine the effects of selected variables on their practices and beliefs. Based on the findings, implications for nursing practice are discussed.

The nursing process model has been widely adopted by nursing educators and administrators despite the relative dearth of empirical evidence to support its value and usefulness in clinical settings. The findings in this study suggest that nurses believe nursing process activities are necessary in the care of their patients but that they are not necessarily able to carry out these activities with as many of their patients as they believe they should. Nursing educators and administrators should therefore continue to teach and promote the nursing process as a tool for nursing practice since its activities are ones which nurses at the bedside are willing and able to carry out.

For nursing educators this means providing student nurses with opportunities to practice using the nursing process model in clinical situations where guidance and feedback are available. For nursing administrators this means promoting a milieu in which use of the nursing process is accepted and rewarded. Inservice and/or educational workshops could be used to keep practicing nurses abreast of changes and innovations in the nursing process model.

The nursing process model appears to be an appropriate foundation for nursing practice standards. Professional nurses associations and other groups of nurses charged with a mandate to develop practice standards could therefore continue to use the nursing process as a framework for their activities.

The nursing process model as it currently exists has evolved over the past two decades. It has undergone numerous changes and much refinement since its early days. As research into nurses' use of diagnostic reasoning and nursing diagnoses progresses (see for example: Gebbie, 1984; Tanner & Hughes, 1984; Westfall, Tanner, Putzier & Padrick, 1986) the nursing process will undoubtedly undergo further transformation. It is therefore imperative that nursing educators, administrators and practitioners alike be alert to changes in nursing process models, be able to critique and assess the significance of these changes, and be willing to adopt the changes which can improve nursing practice. The ultimate aim of these activities would be to enhance the quality of nursing care provided to patients in the future.

Limitations of the Study

1. The small number of respondents in the study may not hold representative views of the perceived practices and beliefs of the larger population of nurses within this hospital. There can be no inferences or generalizations made beyond those which apply to the study sample.

2. Measurements of nurses' perceived practices in relation to the nursing process were based on the respondents' ability to recall and estimate the percentage of patients with whom they had carried out activities during the preceeding two weeks. Hence, the respondents' reported practices may not totally reflect their actual practices.

3. It was not possible to identify non-respondents, therefore no individualized follow-up procedures could be carried out either to enhance the return rate or to identify characteristics which may have been predominant among the non-respondents.

4. Since this is the first time the questionnaire has been used in a study, there are no other estimates of its

validity and reliability in measuring the desired dependent and independent variables.

5. The length of the questionnaire may have affected nurses willingness to participate in the study.

6. There was no data collected which examined whether the respondents had received preparation on the use of the nursing process within an educational program.

Recommendations for Further Research

Since there were no previous estimates of the validity and reliability of the research instrument, further testing, revision, and evaluation are needed. Recommendations for further research related to the tool are as follows:

1. Replicate the study with a sample which is large enough to permit factor analysis of all the nursing process items together. Factor analysis conducted in this manner can provide valuable information concerning the ability of the instrument to measure the discrete subprocesses of the nursing process.

2. Reword and refine the items which were used to operationalize the nursing process paying particular attention to the items which had low factor loadings within their respective subscales.

3. Devise a less confusing format of collecting biographical data related to the dates and shifts worked

and the number of patients in daily assignments. This can be accomplished, in part, by providing instructions on how to record the shifts on which respondents may have had special duties instead of patient assignments.

Alternate strategies in the research design may have enhanced the return rate and the quality of the data which were obtained in this study. Recommendations for further research which relate to the study design are as follows:

1. Instead of an anonymous survey technique, select and identify a sample of potential respondents and determine their willingness to participate in the study in advance of questionnaire distribution. This may enable the researcher to obtain a sample size more suitable to advanced statistical procedures.

2. Introduce greater research control into the study by:
(a) having respondents report their activities in relation to only day and/or evening shifts in order to minimize the variation introduced by workloads and staffing patterns on night shifts;
(b) having respondents report their activities at the end of each group of shifts worked rather than in two week time periods in order to minimize problems with recall and therefore, to enhance the reliability of the data obtained.

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APPENDICIES

APPENDIX A

STANDARD II

FROM

STANDARDS FOR NURSING PRACTICE

ADOPTED BY

THE NURSES ASSOCIATION OF NEW BRUNSWICK

APPENDIX A

Standard II from Standards for Nursing Practice

adopted by
The Nurses Association of New Brunswick

Standard II: Nursing practice requires the effective use of the nursing process as the method for carrying out the functions of nursing practice.

1. Nurses are required to collect data.

   The nurse in any practice setting:

   1.1 systematically and continuously collects data that are consistent with her concept of the client utilizing knowledge from nursing and related fields

   1.2 systematically and continuously collects data that are consistent with the goals of related disciplines

   1.3 determines the client's expectations for care

   1.4 uses all appropriate sources for data collection including: client, physician, family, relevant others, records, the nurse's own knowledge and experience

   1.5 employs various techniques in data collection including: interview, consultation, physical examination observation, measurement

   1.6 treats data with regard to the confidentiality of those concerned

   1.7 makes relevant data available to appropriate persons

2. Nurses are required to analyse data.

   The nurse in any practice setting:

   2.1 interprets the data in accordance with her conceptual model and knowledge from nursing and related fields

   2.2 interprets data taking into account the interdisciplinary plan for care

2.3 validates interpretation of the data with the client and others when possible

2.4 identifies actual and potential problems with the client when possible

2.5 sets priorities for resolving identified problems with the client when possible

2.6 communicates regarding identified problems with appropriate others

3. Nurses are required to plan their nursing actions.

The nurse in any practice setting:

3.1 identifies short and long term objectives of nursing actions in collaboration with the client and appropriate others

3.2 identifies short and long term objectives of nursing actions which are consistent and congruent with the interdisciplinary plan for care

3.3 states these objectives in behavioral terms specifying the desired results

3.4 states a resonable time period for the achievement of these objectives

3.5 considers environmental conditions which could affect achievement of these objectives

3.6 identifes required resources

3.7 considers a number of nursing actions in accordance with the specified focus and modes of intervention

3.8 selects nursing actions based on the highest probability of their effectiveness

3.9 communicates with appropriate others regarding the planned actions

4. Nurses are required to perform nursing actions which implement the plan.

The nurse in any practice setting:

4.1 encourages client participation whenever possible in carrying out nursing actions to meet objectives

4.2 carries out nursing actions demonstrating required knowledge, attitudes and skills

4.3 exercises judgement in carrying out the nursing portion of the prescribed medical regime

4.4 delegates appropriate activities to auxillary personnel as required

4.5 supervises auxillary personnel in carrying out delegated activities

4.6 utilizes appropriate resources

4.7 manipulates the environment to meet the objectives

4.8 communicates with appropriate others when necessary regarding nursing activities

5. Nurses are required to evaluate all steps of the nursing process.

The nurse in any practice setting:

5.1 observes the results of her nursing actions

5.2 compares the results of nursing actions with those stated in the short and long term objectives

5.3 judges, within the context of client participation, the degree to which the objectives have been met

5.4 communicates with appropriate others regarding her evaluation

5.5 revises with the client and appropriate others the objectives, priorities, and nursing actions as indicated

Note Copied from a document accepted by the membership of the Nurses' Association of New Brunswick during its annual meeting May, 1984.

APPENDIX B

NURSING PROCESS AS FOUND IN THE PRACTICE STANDARDS OF THE NURSES ASSOCIATION OF NEW BRUNSWICK AND AS DESCRIBED IN NURSING LITERATURE

APPENDIX B

NURSING PROCESS AS FOUND IN THE PRACTICE STANDARDS OF THE NURSES ASSOCIATION OF NEW BRUNSWICK AND AS DESCRIBED IN NURSING LITERATURE

Nursing process as in the Practice Standards of the Nurses Association of New Brunswick	Nursing process as described in Nursing Literature	References	
Collecting Data	Collecting Data		
1. Nurses are required to collect data. The nurse in any practice setting:			
1.1. Systematically and continuously collects data that are consistent with her concept of the client utilizing knowledge from nursing related fields.	Data collection is systematic.	Crow, 1979 Iyer et al., 1986 Keane, 1981 Kratz, 1977 Lauri, 1982 Leddy & Pepper, 1985	McCain, 1965 McGilloway, 1980 Philpott, 1985 Pinnell & Meneses, 1986 Ziegler et al., 1986
	Data collection is continuous or ongoing.	Atkinson & Murray, 1986 Iyer et al., 1986 Keane, 1981	Leddy & Pepper, 1985 Lewis, 1968 Pinnell & Meneses, 1986
	Data collection is based on a conceptual framework or typology or a concept of the client.	Atkinson & Murray, 1986 Crow, 1977 Hunt & Marks-Maran, 1986 Lewis, 1968 Marriner, 1983	Pinnell & Meneses. 1986 Putzier & Padrick, 1984 Yura & Walsh, 1983 Ziegler et al., 1986
1.2. Systematically and continuously collects data that are consistent with the goals of related disciplines.	Data collection supplements and compliments data collected by other health professionals.	Crow, 1979 Leddy & Pepper, 1985	Ziegler et al., 1986

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Nursing process as in the Practice Standards of the Nurses Association of New Brunswick	Nursing process as described in Nursing Literature	References	
1.3. Determines the client's expectations for care.	Data collection includes determining the client's perception of his/her condition and his/her expectations for care and developing an understanding of the client's behavior and attitudes.	Berggren & Zagornik, 1968 Campbell et al., 1985 Harrison, 1966 Joseph, 1980 Lewis, 1968	Pinnell & Meneses, 1986 Schaefer, 1974 Simmons, 1984 Williamson, 1982 Yura & Walsh, 1983
1.4. Uses all appropriate sources for data collection including: client, physician, family, relevant others, records, the nurse's own knowledge and experience.	Sources used during data collection:		
	Patient/client	Atkinson & Murray, 1986 Campbell et al., 1985 Crow, 1979 Joseph, 1980 Lewis, 1968 Marriner, 1983	McCain, 1965 Pinnell & Meneses, 1986 Williamson, 1982 Yura & Walsh, 1983 Ziegler et al., 1986
	Members of the health care team	Atkinson & Murray, 1986 Berggren & Zagornik, 1968 Joseph, 1980 Lewis, 1968 Marriner, 1983	McCain, 1965 Pinnell & Meneses, 1986 Williamson, 1982 Yura & Walsh, 1983 Ziegler et al., 1986
	Family and relevant others	Atkinson & Murray, 1986 Berggren & Zagornik, 1968 Campbell et al., 1985 Crow, 1979 Joseph, 1980 Lewis, 1968	Marriner, 1983 McCain, 1965 Pinnell & Meseses, 1986 Williamson, 1982 Yura & Walsh, 1983 Ziegler et al., 1986

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Nursing process as in the Practice Standards of the Nurses Association of New Brunswick	Nursing process as described in Nursing Literature	References
1.4. con't	Health care records	Atkinson & Murray, 1986 Berggren & Zagornik, 1968 Crow, 1979 Lewis, 1968 Marriner, 1983 McCain, 1965 Pinnell & Meneses, 1986 Williamson, 1982 Yura & Walsh, 1983 Ziegler et al., 1986
	Nurses' skill and knowledge	Boylan, 1983 Crow, 1979 Harrison, 1966 Hunt & Marks-Maran, 1986 Iyer et al., 1986 Marriner, 1983 Pinnell & Meneses, 1986 Schaefer, 1974 Ziegler et al., 1986
1.5. Employs various techniques in data collection including: interview, consultation, physical examination observation, measurement.	Techniques used during data collection:	
	Interaction, communication and interview	Atkinson & Murray, 1986 Berggren & Zagornik, 1968 Boylan, 1983 Crow, 1979 Hunt & Marks-Maran, 1986 Iyer et al., 1986 Lewis, 1968 Marriner, 1983 McCain, 1965 Pinnell & Meneses, 1986 Putzier & Padrick, 1984 Schaefer, 1974 Williamson, 1982 Yura & Walsh, 1983 Ziegler et al., 1986
	Physical assessment and measurement	Atkinson & Murray, 1986 Crow, 1979 Iyer et al., 1986 Lewis, 1968 McCain, 1965 Pinnell & Meneses, 1986 Yura & Walsh, 1983 Ziegler et al., 1986

APPENDIX B con't

Nursing process as in the Practice Standards of the Nurses Association of New Brunswick	Nursing process as described in Nursing Literature	References
1.5. con't	Observation	Atkinson & Murray, 1986 Berggren & Zagornik, 1968 Crow, 1979 Harrison, 1966 Hunt & Marks-Maran, 1986 Iyer et al, 1986 Lewis, 1968 Marriner, 1983 McCain, 1965 Putzier & Padrick, 1984 Schaefer, 1974 Yura & Walsh, 1983 Ziegler et al., 1986
1.6. Treats data with regard to the confidentiality of those concerned.	Information about clients and their problems must be kept in confidence.	Canadian Nurses Association, 1985 Fromer, 1981 Hunt & Marks-Maran, 1986 Iyer et al., 1986 Storch, 1982 Williamson, 1982 Ziegler et al., 1986
1.7. Makes relevant data available to appropriate persons.	Data are recorded and shared appropriately.	Crow, 1979 Iyer et al., 1986 Leddy & Pepper, 1985 Marriner, 1983 McGilloway, 1980 Philpott, 1985 Ziegler et al., 1986
	Both objectives and subjective data are collected.	Atkinson & Murray, 1986 Iyer et al., 1986 Pinnell & Meneses, 1986 Ziegler et al., 1986
	Data collection should be appropriate to the particular situation.	Baines, 1981 Crow, 1979 Hunt & Marks-Maran, 1986 Leddy & Pepper, 1985 McCain, 1965 Pinnell & Meneses, 1986 Zielger et al., 1986

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Nursing process as in the Practice Standards of the Nurses Association of New Brunswick	Nursing process as described in Nursing Literature	References	
	Data collected may include information about many facets of the client's condition:		
	Physical state	Bloch, 1974 Boylan, 1982 Crow, 1979 McCain, 1965 McGilloway, 1980 Pinnell & Meneses 1986	Schaefer, 1974 Simmons, 1984 Whelton, 1979 Williamson, 1982 Yura & Walsh, 1983 Ziegler et al., 1986
	Psychological state	Crow, 1979 McCain, 1965 McGilloway, 1980 Pinnell & Meneses, 1986 Schaefer, 1974	Simmons, 1984 Whelton, 1979 Williamson, 1982 Yura & Walsh, 1983 Ziegler et al., 1986
	Emotional state	Bloch, 1974 Boylan, 1982 Crow, 1979 Leddy & Pepper, 1985	Simmons, 1984 Whelton, 1979 Yura & Walsh, 1983
	Social influence	Bloch, 1974 Boylan, 1982 Crow, 1979 McCain, 1965 McGilloway, 1980 Pinnell & Meneses, 1986	Schaefer, 1974 Simmons, 1984 Whelton, 1979 Williamson, 1982 Yura & Walsh, 1983 Ziegler et al., 1986

APPENDIX B con't

Nursing process as in the Practice Standards of the Nurses Association of New Brunswick	Nursing process as described in Nursing Literature	References
	Data collected con't	
	Factors affecting health status (eg. health history, current treatments)	Berggren & Zagornik, 1968 Boylan, 1982 Campbell et al., 1985 Crow, 1979 Leddy & Pepper, 1985 Lewis, 1968 Pinnell & Meneses, 1986 Schaefer, 1974 Whelton, 1979 Williamson, 1982 Yura & Walsh, 1983 Ziegler et al., 1986
	Resources and strengths	Campbell et al., 1985 Harrison, 1966 McCain, 1965 Yura & Walsh, 1983
	Potential and capabilities	Harrison, 1966 Lewis, 1968 McCain, 1965
	Educational needs	Crow, 1979 Joseph, 1980
	Data collected should be validated with the client and other sources.	Crow, 1979 Hunt & Marks-Maran, 1986 Iyer et al., 1986 Keane, 1981 Leddy & Pepper, 1985 Lewis, 1968 Schaefer, 1974 Yura & Walsh, 1983
	Data collection provides a time to establish rapport and trusting relationship between the nurse and the client.	Atkinson & Murray, 1986 Campbell et al., 1985 Crow, 1977 Iyer et al., 1986 Keane, 1981 Leddy & Pepper, 1985 Simmons, 1984 Yura & Walsh, 1983

APPENDIX B con't

Nursing process as in the Practice Standards of the Nurses Association of New Brunswick	Nursing process as described in Nursing Literature	References	
Analysing Data	**Analysing Data**		
2. Nurses are required to analyse data. The nurse in any practice setting:			
2.1. Interprets the data in accordance with her conceptual model and knowledge from nursing and related fields.	Data analysis requires that data be grouped or arranged according to a framework or clustered according to cues in the data.	Iyer et al., 1986 Leddy & Pepper, 1985 Marriner, 1983 Pinnell & Meneses, 1986	Putzier & Padrick, 1984 Tanner & Hughes, 1984 Williamson, 1982 Ziegler et al., 1986
	Data analysis requires knowledge and judgement.	Carnevali, 1984 Crow, 1977 Iyer et al., 1986 Komorita, 1963 Leddy & Pepper, 1985	Purushotham, 1981 Putzier & Padrick, 1984 Schaefer, 1974 Yura & Walsh, 1983 Ziegler et al., 1986
2.2. Interprets data taking into account the interdisciplinary plan for care.	Data analysis requires collaboration with other members of health care team.	Carnevali, 1984 Iyer et al., 1986 Keane, 1981	Pinnell & Meneses, 1986 Schaefer, 1974
2.3. Validates interpretation of the data with the client and others when possible.	Data analysis requires validation with client.	Crow, 1977 Gordon, 1978 Hunt & Marks-Maran, 1986	Iyer et al., 1986 Leddy & Pepper, 1985 Pinnell & Meneses, 1986

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Nursing process as in the Practice Standards of the Nurses Association of New Brunswick	Nursing process as described in Nursing Literature	References	
2.4. Identifies actual and potential problems with the client when possible.	Actual problems are identified.	Aspinall & Tanner, 1984 Atkinson & Murray, 1986 Crow, 1977 Gordon, 1979 Iyer et al., 1986	Leddy & Pepper, 1985 Marriner, 1983 Pinnell & Meneses, 1986 Yura & Walsh, 1983 Ziegler et al., 1986
	Potential problems are identified.	Aspinall & Tanner, 1984 Atkinson & Murray, 1986 Crow, 1977 Gordon, 1978 Iyer et al., 1986	Leddy & Pepper, 1985 Marriner, 1983 Pinnell & Meneses, 1986 Yura & Walsh, 1983 Ziegler et al., 1986
2.5. Sets priorities for resolving identified problems with the client when possible.	Priorities are established during data analysis.	Berggren & Zagornik, 1968 Crow, 1977 Hunt & Marks-Maran, 1986 Keane, 1981	Lewis, 1981 Yura & Walsh, 1983 Zielger et al., 1986
2.6. Communicates regarding identified problems with appropriate others.	Communicates with personnel involved in the client's care.	Crow, 1977 Lewis, 1981 McGilloway, 1980	Pinnell & Meneses, 1986 Schaefer, 1974 Williamson, 1982
	Identified problems must be ammenible to nursing intervention.	Atkinson & Murray, 1986 Gordon, 1983 Hunt & Marks-Maran, 1986	Purushotham, 1981 Whelton, 1979

APPENDIX B con't

Nursing process as in the Practice Standards of the Nurses Association of New Brunswick	Nursing process as described in Nursing Literature	References	
	Etiological factor(s) underlying problems must be identified.	Aspinall & Tanner 1984 Gordon, 1978 Hunt & Marks-Maran, 1986 Iyer et al., 1986 Leddy & Pepper, 1986	Marriner, 1983 Pinnell & Meneses, 1986 Putzier & Padrick, 1984 Ziegler et al., 1986
Planning the Intervention	Planning the Intervention		
3. Nurses are required to plan their nursing actions. The nurse in any practice setting:			
3.1. Identifies short and long term objectives of nursing actions in collaboration with the client and appropriate others.	Planning includes identification of long-term and short-term goals.	Atkinson & Murray, 1986 Leddy & Pepper, 1985 Marriner, 1983 McGilloway, 1980	Schaefer, 1974 Williamson, 1982 Yura & Walsh, 1983
	Plans should be developed in collaboration with the client.	Haller & Reynolds, 1982 Iyer et al., 1986 Joseph, 1980 Keane, 1981 Leddy & Pepper, 1985 Marriner, 1983	Pinnell & Meneses, 1986 Schaefer, 1974 Williamson, 1982 Yura & Walsh, 1983 Ziegler et al., 1986
	Plans should be developed in collaboration with family & significant others.	Keane, 1981 McGilloway, 1980	Pinnell & Meneses, 1986

APPENDIX B con't

Nursing process as in the Practice Standards of the Nurses Association of New Brunswick	Nursing process as described in Nursing Literature	References
3.2. Identifies short and long term objectives of nursing actions which are consistent and congruent with the interdisciplinary plan for care.	Plans should be developed in collaboration with other members of the health care team and be compatable with plans of other team members.	Atkinson & Murray, 1986 Iyer et al., 1986 Marriner, 1983 McGilloway, 1980 Philpott, 1985 Pinnell & Meneses, 1986 Schaefer, 1974 Williamson, 1982 Yura & Walsh, 1983
3.3. States these objectives in behavioral terms specifying the desired results.	Goals or objectives should be stated in terms of observable and/or measurable behaviors.	Atkinson & Murray, 1986 Hunt & Marks-Maran, 1986 Iyer et al., 1986 Marriner, 1983 Pinnell & Meneses, 1986
3.4. States a reasonable time period for the achievement of these objectives.	Plans should include a time-frame for achievement of goals and objectives.	Atkinson & Murray, 1986 Hunt & Marks-Maran, 1986 Iyer et al., 1986 Leddy & Pepper, 1985 Pinnell & Meneses, 1986 Yura & Walsh, 1983 Ziegler et al., 1986
3.5. Considers environmental conditions which could affect achievement of these objectives.	Plans must take into consideration the client's environment.	Berggren & Zagornik, 1969 Iyer et al., 1986 Lewis, 1968 Orem, 1985 Wells, 1981 Whelton, 1979
3.6. Identifies required resources.	Plans must take into consideration the resources required to meet the goals or objectives.	Harrison, 1966 Iyer et al., 1986 Leddy & Pepper, 1985 Marriner, 1983

APPENDIX B con't

Nursing process as in the Practice Standards of the Nurses Association of New Brunswick	Nursing process as described in Nursing Literature	References
3.7. Considers a number of nursing actions in accordance with the specified focus and modes of intervention. 3.8. Selects nursing actions based on the highest probability of their effectiveness.	The nurse generates a number of alternative options for care, considers the probable outcome for each with its benefits and risks and then selects for the care plan the option most likely to be effective.	Atkinson & Murray, 1986 Hunt & Marks-Maran, 1986 Iyer et al., 1986 Leddy & Pepper, 1985 Pinnell & Meneses, 1986 Yura & Walsh, 1983
	Plans must be based on scientific principles for the behavioral, biological and nursing sciences.	Hunt & Marks-Maran, 1986 Iyer et al., 1986 Marriner, 1983 Pinnell & Meneses, 1986 Whelton, 1979 Ziegler et al., 1986
	Plans and goals must be individualized and realistic.	Atkinson & Murray, 1986 Hunt & Marks-Maran, 1986 Iyer et al., 1986 Keane, 1981 Leddy & Pepper, 1985 Marriner, 1983 McGilloway, 1980 Whelton, 1979 Ziegler et al., 1986
3.9. Communicates with appropriate others regarding the planned actions.	Plans must be written and/or shared with all personnel involved in the client's care.	Crow, 1977 Hunt & Marks-Maran, 1986 Iyer et al., 1986 Leddy & Pepper, 1985 Marriner, 1983 McGilloway, 1980 Philpott, 1985 Pinnell & Meneses, 1986 Schaefer, 1974 Williamson, 1982 Yura & Walsh, 1983

APPENDIX B con't

Nursing process as in the Practice Standards of the Nurses Association of New Brunswick	Nursing process as described in Nursing Literature	References
	Plans give direction, organization and continuity to nursing care and provide criteria for evaluating response.	Crow, 1977 Hunt & Marks-Maran, 1986 Leddy & Pepper, 1985 McGilloway, 1980 Pinnell & Meneses, 1986 Yura & Walsh, 1983 Ziegler et al., 1986
Implementing the Intervention	Implementing the Intervention	
4. Nurses are required to perform nursing actions which implement the plan. The nurse in any practice setting:		
4.1. Encourages client participation whenever possible in carrying out nursing actions to meet objectives.	Nursing interventions should provide for client participation when possible.	Harrison, 1966 Leddy & Pepper, 1985 Pinnell & Meneses, 1986 Simmons, 1984 Yura & Walsh, 1983
4.2. Carries out nursing actions demonstrating required knowledge, attitudes, and skills.	Nursing interventions require knowledge, judgement, and skills.	Henderson, 1982 Iyer et al., 1986 Leddy & Pepper, 1985 Pinnell & Meneses, 1986 Simmons, 1984 Yura & Walsh, 1983 Ziegler et al., 1986
4.3. Exercises judgement in carrying out the nursing portion of the prescribed medical regime.	Nursing interventions may include carrying out physicians orders and/or prescribed therapeutic regime.	Henderson, 1965 Leddy & Pepper, 1985 Marriner, 1983 Pepler, 1979 Pinnell & Meneses, 1986 Simmons, 1984 Wells, 1981 Williamson, 1982 Yura & Walsh, 1983 Ziegler et al., 1986

APPENDIX B con't

Nursing process as in the Practice Standards of the Nurses Association of New Brunswick	Nursing process as described in Nursing Literature	References	
4.4. Delegates appropriate activities to auxillary personnel as required. 4.5. Supervises auxillary personnel in carrying out delegated activities.	Nursing interventions may include delegating activities to others and supervising same; leadership and managerial skills are a part of nursing.	Henderson, 1965 Iyer et al., 1986 Keane, 1981 Leddy & Pepper, 1985 Pinnell & Meneses, 1986	Schaefer, 1974 Wells, 1981 Williamson, 1982 Yura & Walsh, 1983
4.6. Utilizes appropriate resources.	Nursing intervention requires use of appropriate resources.	Iyer et al., 1986	Yura & Walsh, 1983
4.7. Manipulates the environment to meet the objectives.	Nursing intervention may involve manipulating or adjusting the client's environment.	Henderson, 1965 Iyer et al., 1986 Leddy & Pepper, 1985 Lewis, 1968 Orem, 1985	Simmons, 1984 Wells, 1981 Whelton, 1979 Yura & Walsh, 1983
4.8. Communicates with appropriate others when necessary regarding nursing activities.	Nursing intervention requires communication skills.	Hunt & Marks-Maran, 1986 Keane, 1981 Leddy & Pepper, 1985 Lewis, 1968	Marriner, 1983 Pinnell & Meneses, 1986 Simmons, 1984 Yura & Walsh, 1983
	Nursing interventions must be documented.	Atkinson & Murray, 1986 Hunt & Marks-Maran, 1986 Iyer et al., 1986	Pinnell & Meneses, 1986 Yura & Walsh, 1983 Ziegler et al., 1986

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Nursing process as in the Practice Standards of the Nurses Association of New Brunswick	Nursing process as described in Nursing Literature	References	
	Nursing intervention involve collaboration with the client, health care team and/or relevant others.	Henderson, 1965 Leddy & Pepper, 1985 Lewis, 1968 Pepler, 1979 Pinnell & Meneses, 1986	Schaefer, 1974 Wells, 1981 Williamson, 1982 Yura & Walsh, 1983 Ziegler et al., 1986
	Nursing interventions incorporate the wider multidisciplinary plan for care.	Hunt & Marks-Maran, 1986 Keane, 1981 Marriner, 1983	Williamson, 1982 Yura & Walsh, 1983
	Nursing interventions include many activities:		
	providing comfort and/or activities of daily living	Iyer et al., 1986 Lewis, 1968 Orem, 1985	Pepler, 1979 Simmons, 1984 Wells, 1981
	providing safety and protection from hazards	Iyer et al., 1986 Lewis, 1968	Pepler, 1979
	teaching	Iyer et al., 1986 Leddy & Pepper, 1985 Lewis, 1968 Marriner, 1983	Pepler, 1979 Simmons, 1984 Wells, 1981 Whelton, 1979
	counselling	Lewis, 1968	Pepler, 1979

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Nursing process as in the Practice Standards of the Nurses Association of New Brunswick	Nursing process as described in Nursing Literature	References	
	Nursing interventions con't		
	supporting strengths; maximizing resources and abilities	Leddy & Pepper, 1985 Lewis, 1968	Orem, 1985
	advocating on client's behalf	Pepler, 1979	
	promoting rehabilitation	Henderson, 1982	Lewis, 1968
Evaluating	Evaluating		
5. Nurses are required to evaluate all steps of the nursing process. The nurse in any practice setting:			
5.1. Observes the results of her nursing actions.	Evaluation involves observation and reflection on the outcomes of nursing intervention.	Atkinson & Murray, 1986 Hunt & Marks-Maran, 1986 Iyer et al., 1986 Keane, 1981 Leddy & Pepper, 1985	McGilloway, 1981 Pinnell & Meneses, 1986 Schaefer, 1974 Williamson, 1982 Yura & Walsh, 1983
5.2. Compares the results of nursing actions with those stated in the short and long term objectives.	Evaluation is based on objectives, goals, and criteria established in the care plan.	Atkinson & Murray, 1986 Carnevali, 1983 Harrison, 1966 Hunt & Marks-Maran, 1986 Iyer et al., 1986 Joseph, 1980 Keane, 1981	Leddy & Pepper, 1985 Marriner, 1983 McGilloway, 1981 Pinnell & Meneses, 1986 Williamson, 1982 Yura & Walsh, 1983 Ziegler et al., 1986

APPENDIX B con't

Nursing process as in the Practice Standards of the Nurses Association of New Brunswick	Nursing process as described in Nursing Literature	References
5.3. Judges, within the context of client participation, the degree to which the objectives have been met.	Evaluation is client centered and includes both objective measurement of concrete phenomenon and subjective perceptions and opinions of the care.	Bergman, 1982 Crow, 1977 Iyer et al., 1986 Pinnell & Meneses, 1986 Schaefer, 1974 Yura & Walsh, 1983
5.4. Communicates with appropriate others regarding her evaluation.	The evaluation should be recorded and/or communicated.	Iyer et al., 1986 Marriner, 1983 Schaefer, 1974 Yura & Walsh, 1983 Ziegler et al., 1986
5.5. Revises with the client and appropriate others the objectives, priorities and nursing actions as indicated.	The care plan is revised as necessary.	Atkinson & Murray, 1986 Hunt & Marks-Maran, 1986 Iyer et al., 1986 Pinnell & Meneses, 1986 Yura & Walsh, 1983 Ziegler et al., 1986
	Evaluation involves collaboration with the client, relevant others and/or other health team members.	Atkinson & Murray, 1986 Marriner, 1983 Pinnell & Meneses, 1986 Schaefer, 1974 Yura & Walsh, 1983 Ziegler et al., 1986
	Evaluation should be continuous and ongoing throughout the nursing process.	Hunt & Marks-Maran, 1986 Iyer et al., 1986 Keane, 1981 Leddy & Pepper, 1985 Lewis, 1968 McGilloway, 1981 Pinnell & Meneses, 1986 Schaefer, 1974 Whelton, 1979 Ziegler et al., 1986

APPENDIX C

THE STUDY INSTRUMENT

Office Use Only

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APPENDIX C

NURSING PROCESS:
PRACTICES AND BELIEFS QUESTIONNAIRE

Biographical Data

1. Which of the following describes your basic nursing education? (Check only one)

____ Diploma in nursing
____ Bachelor's degree in nursing

Indicate any additional education you hold.

____ Masters degree in nursing
____ Bachelors degree in nursing
____ Nursing courses leading toward a degree in nursing
____ Other (Please specify) ________________________________
____ None

2. In what year did you graduate from your basic nursing program?

19____

3. How long have you been employed in nursing since graduating from your basic nursing program?

__________ years

If less than 1 year, how many months?

__________ months

4. How would you describe your usual daily workload over the past two weeks? (Check only one)

____ unusually heavy; unable to complete assignment or had to have help and/or work overtime to get everything done.
____ heavy but able to complete assignment
____ reasonable; in addition to completion of own work had time to help colleagues with their work and/or do 'extras' for patients.
____ light; easily able to complete own work, help others and have time to spare.
____ unusually light; unit has been unusually quiet.

5. (a) Were these typical weeks on your unit in terms of staffing and patient numbers?

____ Yes

____ No

If no, please explain: ____

____

(b) When you worked two or more consecutive shifts, which patients were usually assigned to you? (Check only one)

____ the same patients on consecutive shifts
____ different patients on each shift
____ a mixture of the same and different patients on consecutive shifts

6. Please use the following 'calendar' to record the dates and shifts you have worked during the past 2 weeks and the number of patients you cared for on each shift.

Please use the following symbols:

DO - days off (any day not at work - including regularly scheduled days off, vacation, leave of absence, or sick time).

D8 - day shift - 8 hours

N8 - night shift - 8 hours

D12 - day shift - 12 hours

N12 - night shift - 12 hours

E8 - evening shift - 8 hours

Example:

Aug 17 D8 ⑥	Aug 18 E8 ⑧	Aug 19 DO —	Aug 20 N 12 ⑮

SUN	MON	TUES	WED	THUR	FRI	SAT

7. Please consider each of the following statements and indicate the percentage of time each is true for you.

	0-20%	21-40%	41-60%	61-80%	81-100%
(a) I receive recognition from my supervisors for my my work.	☐	☐	☐	☐	☐
(b) I have good working relationships with other health care workers (eg. therapists, dietary).	☐	☐	☐	☐	☐
(c) I receive support and encouragement from my nursing colleagues.	☐	☐	☐	☐	☐
(d) I have a good working relationship with medical staff.	☐	☐	☐	☐	☐
(e) I enjoy working with patients/clients.	☐	☐	☐	☐	☐
(f) I have opportunities to exchange my ideas about nursing care with my supervisors and colleagues.	☐	☐	☐	☐	☐
(g) I feel good about coming to work here.	☐	☐	☐	☐	☐
(h) I feel my supervisor respects my opinions about nursing care issues.	☐	☐	☐	☐	☐

Practices and Beliefs

The following statements provide a list of activities which may be associated with the nursing process. Read each one carefully while recalling the nursing care you have provided to patients during the past two weeks. Then, in the spaces to the left of the statements, place a "x" in the column which reflects the percentage of patients with whom you carried out each activity when it was appropriate or necessary. In the spaces to the right of the statements, place an "x" in the column which reflects the percentage of patients with whom you believe each activity should have been carried out. In these responses, please report what YOU personally think and believe - not necessarily what a teacher or supervisor may have told you.

Not Applicable (N/A) should be used when the activity would have been impossible or inappropriate. For example, if you have been caring for infants or patients who are comatose, they would be unable to particpate in identifying their own nursing care requirements and hence, you would respond to statement number 25 with N/A. However, unless all your patients fell into such a category, you would report the percentage of remaining patients with whom the activities were carried out.

Practices Percentage of Patients with whom each activity was carried out							Beliefs Percentage of Patients with whom each activity should have been carried out					
0-20%	21-40%	41-60%	61-80%	81-100%	N/A		0-20%	21-40%	41-60%	61-80%	81-100%	N/A
						1. Nurses use the following techniques to collect information about their patients:						
[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	(a) interview	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	(b) observation	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	(c) physical assessment	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	(d) consultation	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	2. Nurses identify the personal strengths and/or the family/community resources of their patients which may assist in achieving their nursing care objectives.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	3. Nurses consider how their patients' hospital environment may affect achievement of their nursing care objectives.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	4. When leaving the unit for any length of time, nurses report the status of their patients to another nurse who will be on the unit during their absence.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]

Practices Percentage of Patients with whom each activity was carried out							Beliefs Percentage of Patients with whom each activity should have been carried out					
0-20%	21-40%	41-60%	61-80%	81-100%	N/A		0-20%	21-40%	41-60%	61-80%	81-100%	N/A
[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	5. Nurses collaborate with their patients and/or appropriate others to identify short-term objectives for their patients' care.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	6. Nurses identify their patients' potential nursing care problems.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	7. Nurses write their patients' nursing care problems in their care plans or on their charts.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	8. Nurses update the nursing part of their patients' care plans daily and/or as frequently as the patient's condition warrants.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	9. Nurses respect the confidentiality of the information they collect about their patients.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	10. Nurses complete referrals and/or transfer forms to communicate their patients' nursing care requirements to nurses in other agencies when necessary.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	11. Nurses interpret the information they collect about their patients in light of the information collected by other health care professionals involved with those patients.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	12. Nurses share their perceptions and understanding of their patients' health problems with other members of the health care team.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	13. Nurses use a nursing model or framework to organize the information they have about their patients.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]

Practices Percentage of Patients with whom each activity was carried out							Beliefs Percentage of Patients with whom each activity should have been carried out					
0-20%	21-40%	41-60%	61-80%	81-100%	N/A		0-20%	21-40%	41-60%	61-80%	81-100%	N/A
[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	14. Nurses use a variety of resources when delivering care to patients (e.g., clergy, teaching aids, etc.)	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	15. Nurses consider alternative nursing actions which may lead to similar outcomes for the patient.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	16. Nurses compare the information they have about their patients with normal values, standards, or expected findings.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	17. Nurses encourage their patients to do as much for themselves as possible, even if this causes an increase in frustration (e.g., stroke) or discomfort (e.g., post-op).	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	18. Nurses develop objectives for their care by identifying desired patient outcomes and behaviors (e.g., the patient will walk unassisted...)	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	19. Nurses make the information they collect about their patients available to appropriate persons.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	20. Nurses consult with an experienced or knowledgeable person when carrying out new or unfamiliar procedures.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	21. Nurses reassess their patients as frequently as their conditions warrant - at least once per shift.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]

Practices Percentage of Patients with whom each activity was carried out							Beliefs Percentage of Patients with whom each activity should have been carried out					
0-20%	21-40%	41-60%	61-80%	81-100%	N/A		0-20%	21-40%	41-60%	61-80%	81-100%	N/A
☐	☐	☐	☐	☐	☐	22. Nurses observe the outcomes of their nursing actions.	☐	☐	☐	☐	☐	☐
☐	☐	☐	☐	☐	☐	23. Nurses ensure the nursing care activities they delegate to others are completed properly.	☐	☐	☐	☐	☐	☑
☐	☐	☐	☐	☐	☐	24. Nurses select the approach to their nursing care which seems most likely to be successful in reaching the desired outcomes.	☐	☐	☐	☐	☐	☐
☐	☐	☐	☐	☐	☐	25. Nurses encourage patients to participate in identifying their own nursing care requirements.	☐	☐	☐	☐	☐	☐
☐	☐	☐	☐	☐	☐	26. Nurses collaborate with their patients and/or appropriate others to identify long-term objectives for their patients' care.	☐	☐	☐	☐	☐	☐
☐	☐	☐	☐	☐	☐	27. Nurses identify short-term objectives for their patients' care.	☐	☐	☐	☐	☐	☐
☐	☐	☐	☐	☐	☐	28. Nurses observe their patients' behaviors and judge the extent of their progress toward the desired outcomes.	☐	☐	☐	☐	☐	☐
☐	☐	☐	☐	☐	☐	29. When in doubt about a physician's order, nurses ask him/her to clarify it.	☐	☐	☐	☐	☐	☐
☐	☐	☐	☐	☐	☐	30. Nurses' objectives for their patients care correspond with the goals of other members of the health care team.	☐	☐	☐	☐	☐	☐

Practices Percentage of Patients with whom each activity was carried out							Beliefs Percentage of Patients with whom each activity should have been carried out					
0-20%	21-40%	41-60%	61-80%	81-100%	N/A		0-20%	21-40%	41-60%	61-80%	81-100%	N/A
[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	31. Nurses collaborate with their patients in deciding which problems should receive priority.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	32. Nurses ensure their patients' environments are optimal to meet desired goals and objectives. (E.g., close door to minimize distractions when teaching.)	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	33. Nurses determine their patients' expectations concerning their care.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
						34. Nurses gather information for use in their nursing care from:						
[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	(a) the patient	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	(b) physicians	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	(c) other nurses	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	(d) family and/or relevant others	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	(e) health care records	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	(f) their recall of experiences in similar situations	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	(g) their knowledge of nursing practice	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	(h) knowledge from other disciplines (e.g., sociology, microbiology, physiology)	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	35. Nurses assign nursing care activities to nursing assistants, ward aides, or others according to their level of expertise and role descriptions.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	36. Nurses identify a reasonable time period in which each objective for their patients' care should be met.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]

Practices Percentage of Patients with whom each activity was carried out							Beliefs Percentage of Patients with whom each activity should have been carried out					
0-20%	21-40%	41-60%	61-80%	81-100%	N/A		0-20%	21-40%	41-60%	61-80%	81-100%	N/A
[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	37. Nurses collect information about their patients that can also be used by other persons involved in the care.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	38. Nurses report their patients' progress to other members of the health care team.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	39. Nurses verify their interpretation of the information they have about their patients with those patients whenever possible and/or appropriate.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	40. Nurses write individualized care plans for each patient.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	41. Nurses identify long-term objectives for each patient.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	42. Nurses consider how their patients' home and/or community environments may influence their progress toward desired objectives.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	43. Nurses consult nursing journals and/or nursing literature to keep their nursing knowledge up to date.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	44. Nurses identify in-hospital resources that may assist their patients in achieving the objectives for their care.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]

Practices Percentage of Patients with whom each activity was carried out							Beliefs Percentage of Patients with whom each activity should have been carried out					
0-20%	21-40%	41-60%	61-80%	81-100%	N/A		0-20%	21-40%	41-60%	61-80%	81-100%	N/A
☐	☐	☐	☐	☐	☐	45. Nurses use 'head-to-toe' or some other systematic format to collect information about their patients.	☐	☐	☐	☐	☐	☐
☐	☐	☐	☐	☐	☐	46. Nurses compare the results of their nursing actions with the objectives stated in their patients' care plans.	☐	☐	☐	☐	☐	☐
☐	☐	☐	☐	☐	☐	47. Nurses inform their nurse-in-charge of changes in their patients' conditions.	☐	☐	☐	☐	☐	☐
☐	☐	☐	☐	☐	☐	48. Nurses identify their patients' actual nursing care problems.	☐	☐	☐	☐	☐	☐
☐	☐	☐	☐	☐	☐	49. Nurses keep family members and/or relevant others up-to-date on the patient's condition and progress.	☐	☐	☐	☐	☐	☐
☐	☐	☐	☐	☐	☐	50. Nurses verify their interpretation of the information they have about their patients with appropriate resource persons when necessary.	☐	☐	☐	☐	☐	☐

Thank you for your time and cooperation in completing this questionnaire.

APPENDIX D

INFORMATION TO PARTICIPANTS

APPENDIX D

INFORMATION TO PARTICIPANTS

You are invited to participate in the following research project.

PROJECT TITLE: Nurses' Perceived Practices and Beliefs in Relation to the Nursing Process

INVESTIGATOR:
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The nursing process is widely regarded as a crucial component of nursing practice. Yet, there has been little research which investigates the clinical applicability of the nursing process and the practices, opinions, and beliefs of staff nurses in relation to it. The purpose of this project is to explore nurses' practices and beliefs in relation to the nursing process.

Staff nurses who work full-time on selected nursing units and who have worked two or more consecutive shifts during the past two weeks are eligible to participate in this study.

Participation in this study involves completing a survey questionnaire designed to collect biographical information about you, to determine the percentage of patients with whom you have carried out specific activities representative of the nursing process during the past two weeks, and to determine the percentage of patients with whom you believe these same activities should have been carried out. The questionnaire requires about 30 minutes to complete.

Participation in this study is voluntary. You are free to decide for yourself whether or not to complete this questionnaire. Although you are asked to provide details of the dates and shifts you have worked during the past two weeks, individuals' responses cannot be singled out since the researcher will not have access to the staffing schedules for the units nor will hospital personnel be given access to the completed questionnaires. Responses to this questionnaire cannot be linked in any way with individuals' performance reviews or evaluations.

To further ensure anonymity, your completed questionnaire may be sealed in the envelope provided and should be left in boxes found in designated locations. Please DO NOT put your name on your completed questionnaire. All responses will be pooled for analysis and the final report will reflect the total number of responses, not those of individuals.

Although participants in this project may not benefit directly from this study, it is anticipated that information gained from staff nurses will be valuable to educators and administrators who wish to know more about the clinical appropriateness and usefulness of the nursing process approach to care. Upon completion of this study, a copy of the thesis will be available in the hospital library and a summary of the findings will be provided to each nursing unit.

If you have questions or concerns about this study and/or your participation in it, feel free to contact the investigator at the address above or in Saint John by phoning (506) 672-2434. You may also contact the thesis supervisor, Dr. P.A. Field, with your questions and/or concerns.

By completing and returning the enclosed questionnaire, you are giving your consent to participate in this study.